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ORIGINAL ARTICLES.

THE APPLICATION OF FORCEPS TO TRANSVERSE AND OBLIQUE POSITIONS OF THE HEAD. DESCRIPTION OF A NEW FORCEPS.

Read in the Section of Obstetrics and Diseases of Women at the Fortieth Annual Meeting of the American Medical Association, June, 1889.

BY HENRY D. FRY, M.D.,

OF WASHINGTON, D. C.

The obstetric forceps is constantly undergoing modifications of construction, and there is no part of the original instrument that has not been, in some manner, altered to suit the ideas of the designer. Blade, shank, lock and handle have been changed in shape and size. Nevertheless, it may be said, but two distinct alterations of the original Chamberlen forceps have been made. They are the pelvic curve of the blade, and the application of axis traction.

Varied as are the designs, the method of employing the forceps is as little fixed as the instrument itself. The application of the blades to the sides of the pelvis, disregarding entirely the position of the head; the application of the blades to the sides of the head whenever practicable; intermittent manual traction; continuous mechanical traction; the advisability or non-advisability of compressing the fœtal head; the utility or inutility of lever action, express some of the diverse opinions held on the subject. This lack of uniformity proves the non-existence of a scientific basis. Labor is absolutely a physical act, accomplished according to a well defined mechanism, therefore the laws governing the application of artificial aid should be precise and absolute. With the earnest desire that progress may be made in this direction, I present my communication to the consideration of the members of the Obstetrical and Gynæcological Section of the American Medical Association.

The following propositions are advanced, and suggest for discussion both the methods of employing the forceps, and the modification of its construction.

1. The forceps should always be applied to the sides of the child's head.

2. The obstetrician should not wed any single form or design of instrument, but he should be equally expert with several, and employ one or another according to the circumstances of the case, always selecting that instrument which best enables him to apply the blades to the sides of the head.

First Proposition. *The forceps should always be applied to the sides of the child's head.* This is styled the French method, because it has been so generally advocated by the obstetric authors of France since the time of Baudelocque. Poullet,[1] of Lyons, in a recent article on this subject states that the doctrine, French in its conception, has unfortunately remained exclusively French, in the sense that it has never been, even partially, adopted by the obstetricians of other nations. In spite of the theoretical efforts of the French masters, the practice has diminished gradually in importance and in frequency of application. In England, Austria and Germany the forceps are always applied symmetrically—one blade to the right, and the other to the left of the pelvis. Poullet further states that even in France the custom is so changed that now the majority of physicians and many specialists operate in like manner. When the head is at the superior strait, he says no one counsels the oblique application of the instrument—an impossibility with the curve of Levret. Under these circumstances, all agree that the head must be seized in whatever manner possible. When, however, it is in the excavation, the classic French authors at least in theory advise oblique application.

In reply to a letter asking for information as to the method generally pursued by the Paris accoucheurs, Dr. Paul Bar kindly writes me:—"When we have to apply the forceps to transverse positions of the vertex, head in excavation or above superior strait, we seek, not to grasp the head from forehead to occiput, but we direct our efforts to apply one blade anteriorly and the other posteriorly."

While it may be that in certain countries the forceps are usually applied to the sides of the mother's pelvis, Poullet undoubtedly errs when he states that the opposite method "has never been, even partially, adopted by the obstetri-

[1] "Nouvelles Archives d'obstétrique et de Gynécologie," Paris, 1887, pp. 44-62.

cians" of those countries. Smellie, one of the earliest English workers in this field, paid strict attention to the situation of the child's ears in relation to the mother's pelvis, and invariably sought to apply the forceps to the sides of the head. Numerous operators, in England and on the Continent, follow the same practice.

In order to ascertain the opinion of the profession in this country, circular letters were addressed to all the teachers of obstetrics, and to numerous practitioners located in every State of the Union. Eighty-two replies were received and the views expressed may be summarized as follows: Forty-two always apply the blades to the sides of the head when possible. Thirty-one always apply the blades to the sides of the mother's pelvis and disregard the position of the head. Nine recognize no rule and apply according to either method.

Various exceptions to these methods were presented.

A number who advocate the first method apply the forceps at the sides of the pelvis when the head is high (transverse or oblique), and after bringing down the presenting part, remove and reapply the instrument to the biparietal diameter of the head. Others, entertaining the same view, attempt to rectify the position of the head, when transverse, before applying the forceps. This is done by external manipulation, by the hand in the vagina, alone, or combined with external manipulation, and with the vectis or forceps.

On the other hand, some of those who follow the principle to adapt the forceps to the sides of the pelvis apply them, under some circumstances, in high situations, to the sides of the head. Several obstetricians employ, in these cases, special forceps with long straight blades.

The advantages of applying the blades to the sides of the head are well known and generally admitted. Reasons exist, however, to prevent the universal adoption of the custom. Its strongest advocates admit it is often impossible to grasp the head in such manner with the instruments now in use. The difficulty arises with high situation of the part when occupying an oblique position, and with transverse positions whether at the brim or in the cavity.

On the other hand some, and among the number many distinguished obstetricians, believe it unnecessary. They claim the application of the instrument to the sides of the pelvis permits the head to rotate within the blades and the normal mechanism of labor is not embarrassed. These operators, we must bear in mind, exercise intelligent supervision, removing and reapplying the instrument when necessary and encouraging the progress of the head according to the natural laws of labor.

By many practitioners the forceps is used without any attempt being made to ascertain the position of the head. It is easy to apply the blades to the sides of the mother's pelvis and the head can usually be delivered in that manner. No attention is paid to the laws governing the passage of the passenger, and brute force supplies the scientific employment of artificial aid.

Transverse positions of the head offer special difficulties in the way of applying the blades to its sides. The most aimed at is to locate the instrument in one or other oblique diameter of the pelvis, seizing the head with a blade in front of one ear, and the opposite behind the other ear. The higher the head is situated the greater the difficulty, and when engaged at the brim few attempt to pass the blades in any manner except to the sides of the mother's pelvis. Such a grasp, besides being less secure, exerts injurious compression upon the fœtal head. If the forceps be patterned after the Simpson model forward rotation of the occiput may take place within the blades, but if the instrument possess greater compressive power, rotation is hindered and the head is dragged into the pelvis transversely. If, under these circumstances, the forceps be not removed and rotation effected by nature, or artificially with the hand, or with the instrument reapplied to the sides of the head, one of the following results may be anticipated:

1. Continued and forcible extractive efforts may succeed in delivering the head, but it will be born with its occipito-frontal diameter in the transverse of the pelvic outlet, causing, as a rule, laceration of the mother's soft parts, and injurious, if not fatal, compression of the fœtal head.

2. Forcible efforts to deliver the head fail, and it becomes obligatory to attempt to push up the presenting part, and if the position cannot be rectified, to deliver by turning, or,

3. Failing to elevate the head, craniotomy is the only alternative.

An important consideration demanding notice, is the comparative frequency of transverse positions of the head. Many obstetric writers claim they are rare; and some of the gentlemen who replied to my circular letters expressed this opinion. My limited experience is opposed to such a view, but I should hesitate to give voice to the contrary were my position not fortified by good authority. During the past six months I have had occasion twice to apply the forceps to the head while transverse in the excavation. Lusk[a] states that when the head is said to occupy the oblique diameter it is not intended in a mathematical sense. It simply implies it is deflected from the transverse. How easily can one fail to recognize this deflection? Let us remember that the anatomical difference between an oblique and transverse position is limited to a space upon the side of the mother's pelvis scarcely more than one

[a] "Science and Art of Midwifery," New York: D. Appleton & Co., 1881, foot note p. 169.

inch in extent. One who considers the position rare, is misled by his conviction. Finding the small fontanelle to the mother's right or left side, and the sagittal suture passing across the pelvis, he looks upon it as one of the oblique positions. A more painstaking examination might reveal to him the above suture passing directly parallel to the transverse diameter of the pelvis, and the fontanelle situated at its extremity. A digital examination made while the woman occupies the left lateral posture contributes to an erroneous conclusion. Advantageous as this obstetric position may be for other purposes, it does not compare with the dorsal when our object is to ascertain the relative anatomical positions of the presenting parts of the fœtus and the mother's pelvis. Abdominal palpation gives little aid in arriving at a differential diagnosis between transverse and oblique positions of the head.

In cases of pelvic deformity with contraction of the conjugate of the brim, it is a well established rule that the head occupies the transverse position. Doubtless, minor degrees of pelvic contraction, and disproportionately large fœtal heads, exist as causal agents of these positions more often than suspected. The opposite conditions, a roomy pelvis or small head, also tend to produce, and to maintain in the excavation, transverse positions by failure to secure flexion.

In many unrecognized cases of transverse position, rotation relieves the difficulty and labor ends normally. In others, nature fails to correct the position and artificial aid is demanded, consequently the comparative frequency of transverse to oblique positions is greater in forceps cases than in those which terminate without such assistance. Failure to rotate will delay labor indefinitely. Binault[3] extracted with forceps a fœtus which was in an advanced state of putrefaction. The mother had been in labor fourteen days, and the head of the child occupied the left occipito-iliac transverse. Four children had previously been born to her with easy labors, so that failure to rotate from a transverse position was the sole cause of delay in this case.

Charpentier and Cazeau describe these positions fully, and give explicit directions for the application of the forceps. Cazeau,[4] speaking of the comparative frequency of different occipital positions, says that in the results given, "no question seems to be made of the varieties we have designated as the transverse ones, and it is highly probable that they have been approximately added to one of the four preceding groups, *for these positions are not very unusual; indeed, I have often met with them myself at the clinique.*" Transverse positions, he adds, are more common than R. O. A., and left occipito-iliac transverse is more frequent than right. Mme. Lachapelle[5] claims that transverse positions are more often met with than R. O. P. Charpentier[6] writes: "One of the most frequent calls for interference is absence of rotation, the head being often transverse, but usually oblique, since these positions, as we have seen, are the fundamental, the others being simply varieties or consequences." Baudelocque, Moreau and Ramsbotham classify these positions. Although Playfair[7] follows the majority of British obstetric authors, by describing only the four oblique positions of the head, he says: Until fairly passed the brim, it more frequently lies in the transverse than has generally been supposed." Poullet,[8] in his article referred to, mentions the frequent occasions that arise at the Lyons clinique for using forceps in transverse positions. He recognized the absence of flexion in these cases and designed his angular forceps with parallel blades to rectify it. Spiegelberg[9] makes no distinction between transverse and oblique positions. The first vertex position is described as follows: "The back of the child looks to the mother's left, and the sagittal suture runs in the transverse or oblique diameter." His second vertex position is the reverse. He further says: "Occasionally the head passes transversely through the pelvic canal, and the sagittal suture is at the outlet in the transverse diameter.

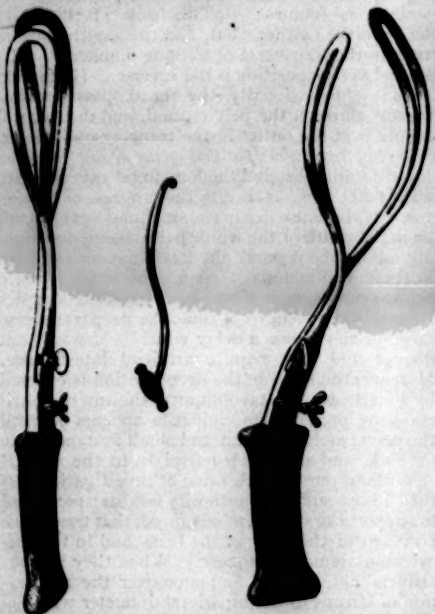
"*Deep transverse position of the head.* The delayed rotation around the long fœtal axis is due to an absence of resistance to the progress of the fœtus. If the cause lies in the smallness of the head, or in the width of the whole pelvis being occasionally above the normal, the head may also emerge in the same diameter." Again he adds: "Since the accomplishment of rotation sometimes occupies a considerable length of time, the deep transverse position may cause a delay which is not without danger and may require artificial interference. Moreover the skull in the deep position is effected by a marked biparietal obliquity, the anterior parietal bone presents, its eminence appears beneath the pelvic arch, the great and small fontanelles lie far back, and are directed straight to the sides."

Without pursuing this line of investigation further I hope sufficient authority has been presented to support the statement advanced, that transverse positions of the head at the brim and in the excavation are not infrequent. When they persist, artificial aid is called for; moreover the application of forceps to the biparietal diameter when so situated is particularly difficult and more often impossible.

The difficulty is due to lack of a proper instru-

3 "Bull. Méd. du Nord," Lille, 1886, 8, vii-ix. 213-220.
4 "Theory and Practice of Obstetrics," seventh Amer. edit., P. Blakiston, Son & Co.
5 Ibid. Phila., 1884, p. 314.
6 "Practical Treatise on Obstetrics," Wm. Wood & Co., New York, 1882, Vol. iv, p. 91.
7 "Science and Practice of Midwifery," third Amer. edit. H. C. Lea. Philadelphia, 1880, p. 262.
8 Ibid.
9 "Text Book of Midwifery." Otto Spiegelberg, London, New Lyderham, Society Trans. 1887, Vol. 1, p. 210.

ment. Forceps with the usual pelvic curve is valueless. Only when this instrument is applied one blade to each side of the mother's pelvis, and the concave edge directed forwards, is it placed so that the pelvic curve conforms to the axis of the pelvic canal. With the forceps inserted in such manner, however, it is impossible to grasp the head in the biparietal diameter when situated either transversely or obliquely. In proportion as the instrument is turned to one side or the other for the purpose of grasping the sides of the head, the pelvic curve of the blades departs from the line of the pelvic axis and the tip of the anterior blade is projected backwards. Not only is the pelvic curve of the classic forceps of no value in these cases, but it complicates its introduction. It becomes necessary at one time to apply the male blade anteriorly, and at another the female. On this account some obstetricians employ, for high transverse positions of the head, long forceps with straight blades.



Antero-posterior Forceps. (Front view.)

Antero-posterior Forceps. (Side view.)

To overcome these disadvantages I have designed a forceps curved on the flat. The introduction is simplified because the same blade is always the anterior and the opposite the posterior. The pelvic curve being upon the flat surface, the head can be seized in its biparietal diameter, whether high or low, or whether placed obliquely or transversely. The curve adopted is the result of experimentation upon fresh fœtal heads and articulated female pelves, and corresponds closely to the pelvic curve on the edge of the classic forceps. The instrument is furnished with a compressive screw for use with the axis-traction attachment, which consists of a steel rod having a handle at one extremity and a hook at the other. The hook fits closely into the fenestrum on the anterior blade and cannot injure the soft parts of the mother. The compressive power of the forceps is about equal to the Hodge, Wallace, and such instruments that are intended for application to the sides of the head.

By seizing the head in its biparietal diameter with the long axis of the blades, parallel to the occipito-mental diameter, we are better able to control flexion and rotation of the head and to deliver by imitating the normal movements of labor. There is also less danger of injuring the child. Lusk[10] states that forceps at the brim is dangerous to the child, "from the rarity of the occasions which permit the blades to be applied to the sides of the head, to which the cephalic curve is alone adapted." This danger is again referred to by Lusk when discussing the paper on "Injury of the Fœtus During Labor,"[11] read by Dr. Parvin before the Philadelphia County Medical Society. He points out the danger of destroying the respiratory sense by injury to the medulla when the head is compressed for some time with the blades applied from occiput to forehead. At the same meeting Dr. Goodell directed attention to the risk of destroying the child by pressing the cord between the blade of the forceps and the occipital bone. This accident he was sure had occurred at his hands, and he attributed it, as well as cases of facial paralysis he had repeatedly seen, to the blades of the forceps not being applied exactly to the sides of the head. Dr. Parrish has also reported[12] several cases of still birth evidently due to compression of the cord when coiled around the neck. "Only," he says, "when the instrument is applied to the sides of the head, with the long axis of the blades parallel to the occipito-mental diameter, is the cord safe."

Objection may be made, on theoretical grounds, to the application of forceps with antero-posterior blades to the head when engaged transversely in the contracted brim, for the reason that the instrument encroaches upon the narrow diameter.

[10] "Science and Art of Midwifery," Appleton & Co., New York, 1884; pp. 348.

[11] "New York Medical Journal," Vol. xlvi, Nos. 22 and 23, pp. 606–634. In this article Dr. Parvin stated that contused wounds usually followed difficult delivery with forceps, and resulted if the blades were applied obliquely or antero-posteriorly to the head. In reply to my circular letters, one operator stated that he had destroyed the sight of an eye by oblique application of the blades to the head when high.

[12] "Journal of the American Medical Association," Vol. xii, No. 18, p. 641.

[13] "Antero-Posterior Compression Forceps for Application at the Brim of Flat Pelves." "British Medical Journal," Feb. 2, 1889, p. 229.

On the contrary, this is an advantage, as the ability to compress the biparietal or bitemporal diameter of the head more than compensates for the space occupied by the blades. This view has happily been confirmed by Dr. Sloan, of Glasgow, in a recent communication[3] to the British Medical Association. The antero-posterior forceps with which he experimented is a powerful compressor, the greatest distance between the blades when closed being 1½ inches. The instrument was designed for application at the brim of flat pelves, and "is never to be used until craniotomy is the only resource left." Trials were made with fresh fœtal heads and dried pelves, and the action of the forceps compared favorably with that of Simpson's.

Dr. Sloan had five opportunities to test the instrument in cases of obstructed labor, and the results were as follows:

Cases 1 and 2 were unsuccessful and had to be terminated by craniotomy.

Case 3.—Flat pelvis. Simpson's forceps failed; Sloan's antero-posterior forceps applied. Head brought down in fifteen minutes and delivered with straight forceps. Child made feeble efforts to breathe and died.

Case 4.—Flat pelvis, with true conjugate about 3½ inches; Simpson's forceps failed; Sloan's applied and child readily delivered alive.

Case 5.—Flat pelvis, true conjugate 2¾ inches; child dead. Simpson's forceps failed; Sloan's completed labor promptly.

The instrument designed by Dr. Sloan is intended only to compress and bring the head through the contracted brim. To complete labor it is necessary to remove the anterior blade and apply another instrument, or deliver with the posterior blade, combined with supra-pubic pressure.

The use of the instrument which I offer is not restricted to labor in flat pelves, but to all cases in which, from failure to rotate, the head is situated transversely or obliquely. If necessary, it can be used to compress as well as to make traction or rotate, and delivery can be completed without changing to a different forceps. I have had but one occasion to test the instrument in obstructed labor, and it left nothing to be desired. The woman, a primapara, æt. 15 years, had been in labor thirty-three hours when I saw her. The waters had been evacuated twenty-eight hours, the os dilated and retracted, the head was engaged at the pelvic inlet in the transverse diameter, with occiput to right, the promontory of the sacrum projecting well forwards. The blades were easily applied to the biparietal diameter and the head brought down, rotated and delivered. Moulding and elongation of the head had so diminished the biparietal diameter that very slight compression brought the handles in contact. The woman recovered and was able to be up on the tenth day. The child, which was at term and weighed 6½ pounds, was born dead. The conjugate diameter measured 2¾ inches. This case offered a severe test of the value of the forceps in labor obstructed by diminished conjugate, as the deformity was to the limit at which it is possible to deliver a fully developed child without mutilation. Turning was out of the question, Cæsarean section not justified, and craniotomy the only resort, if forceps failed. The use of the traction rod is designed for application when the head is high. As soon as the part is brought through the inlet the rod can be removed and traction made with the handles. Besides simplicity, it offers these advantages over other axis-traction attachments:

Traction made with the rod approximates the blades and increases the security of the grasp of the instrument.

The amount of compression exerted is, to some extent, in proportion to the force required to deliver the head.

c d, Axis of inlet; a b, line of traction, parallel to axis of inlet; e f, line of traction with blades inserted at sides of pelvis.

The greatest advantage, however, is that the direction of traction can be made more completely in the line of the axis of the brim. With the Tarnier principle it is absolutely necessary to apply the blades laterally; consequently traction is made from the sides of the pelvis. With the antero-posterior forceps the line of traction is downwards and backwards from behind and above the symphysis.

At the time I designed this forceps I thought the idea original, but investigation proved it not

so. Baumers,[14] of Lyons, published in 1849 an article describing a pair of forceps with antero-posterior blades constructed on the same principle. The representations of this forceps depict a very crude instrument having an exaggerated pelvic curve. No effort seems to have been made to modify its construction, although Cazean found it useful in transverse positions of the head. In such cases, he said,[15] he was "convinced that the biparietal application of the blades, which is impossible with the ordinary forceps, is sometimes easy with that of M. Baumers," and he "thought it right to recommend their application."

Antero-posterior Forceps of Baumers (after Charpentier).

In conclusion I desire briefly to consider the second proposition advanced:

The obstetrician should not wed any single form or design of instrument, but he should be equally expert with several, and employ one or another, according to the circumstances of the case, always selecting that instrument which best enables him to apply the blades to the sides of the head.

In direct opposition to this is the statement of some obstetric writers that one form of instrument should be made to answer for all cases. For instance Playfair[16] says: "It is a decided advantage for the practitioner to habituate himself to the use of one instrument, with the application and power of which he becomes thoroughly familiar. It is a mere waste of space and money for him to incumber himself with a number of instruments of various shapes and sizes, and he may be sure that a good pair of long forceps, such as Simpson's, will be suitable for every emergency, *and in any position of the head* (italics my own). Simpson[17] and Leishman[18] give similar advice.

In order to obtain an expression of opinion on the subject from the profession in this country, the following question was embodied in the circular letter sent out:

"Do you habitually employ one variety or make of forceps, or do you make use of several varieties?" The replies were divided in this manner: Thirty employed but one variety of forceps, fifty-three used different varieties, and thirty of the latter recognized the value of axis traction in high operations, and eleven used the short forceps in low operations.

Of the class that use one instrument for all cases the Hodge is the favorite; next in order come the Simpson and Elliot.

Of the fifty-three who use different styles of long double curved forceps the Hodge is still the favorite, the Elliott next, and then the Simpson.

Of the thirty who favor axis traction for high operations this peculiarity is noted: Only two use the Hodge for ordinary cases, while the Simpson and Elliott are very popular.

With the desire to formulate special indications for the use of different forceps, the question was asked those who used a variety of styles, under what conditions they employed one or another instrument. Some were guided by no rule, and replied: "If one won't answer, try another;" "use the one that seems to be best suited for the case;" "often change from one kind to another;" and one gentleman uses them "just as he picks them up in his office or residence."

The indications for axis traction and short forceps are fully recognized by those who employ the classic double curved forceps for ordinary cases. The selection of the variety of the latter instrument is guided chiefly by its compressive power. Those who advocate the application of the blades to the sides of the head select usually the Hodge, Wallace or Davis. The followers of the opposite method employ the Simpson or Elliott. Other indications noted were the use of Taylor's narrow-bladed forceps in the class of cases for which it is designed; straight forceps for rotation of low posterior positions, and forceps with long, straight, or nearly straight, blades for application to the sides of the head when high and transverse. By one correspondent the short forceps is employed when the head is at the outlet, to regulate its movements and save the peri-

[14] "Gaz. Med. de Paris," 1849, 3 s. iv, pp. 538—558.
Antero-posterior forceps were also designed by Uytterhoven in 1805. In the discussion of Dr. Sloan's paper Dr. W. L. Reid, of Glasgow, exhibited a pair of antero-posterior forceps which he stated he had used with satisfactory results for seven or eight years.

[15] "System of Midwifery," 3d Am. edit., H. C. Lea, Philadelphia, 1880, p. 468.

[16] Ibid.

[17] Obstetrical Works, Vol. —, p. 442.

[18] "System of Midwifery," 2d Am. edit. H. C. Lea, Philadelphia, 1875; p. 499.

neum. Two distinguished operators state they always apply the blades to the biparietal diameter, when possible, and they use the Davis forceps. When, from any cause, the blades cannot be adjusted to the sides of the head, they are applied at the sides of the pelvis; but under these circumstances both of the gentlemen wisely discard the Davis forceps; one substitutes the Simpson, and the other the Simpson or Tarnier. There were numerous exceptions to the above rules; for instance, one gentleman, emphatic in his expression of the value of applying the blades to the sides of the pelvis, uses a strong French forceps, the tips of which meet, and the greatest distance between the blades is 2¼ inches.

The comparative compressive power of different styles of forceps is recognized by a number of operators, who employ one or another under conditions which do or do not require that action. One correspondent states that in ordinary cases, as uterine inertia, he uses the Simpson forceps; in pelvic or cranial disproportion, when some compression is necessary, the Elliot; in greater narrowing, but above the limit where craniotomy is to be considered, the Hodge or Wallace.

Another employs the Simpson forceps in first and second positions of the vertex, the Tarnier in third and fourth, and the short forceps when the head is low.

According to the views here expressed, the only conditions generally recognized for selecting the different varieties of forceps are:

1st. The high or low situation of the head, and

2d. The compressive power of the instrument.

Accepting the opinion of the majority of replies to the circular letters regarding the advisability of applying the blades to the sides of the head when possible, and recognizing the difficulties in the way of accomplishing it in many cases, a third indication advanced is the oblique and transverse positions of the head, for which, and to overcome the difficulties mentioned, I submit the antero-posterior forceps curved on the flat.

In reply to objections made on the ground that this would unnecessarily complicate the armamentarium of the obstetric operator, I would ask to consider one moment whether it is unnecessary.

Does not the dentist possess a number of forceps, curved on the flat and edge, and in all conceivable angles, and does he not select that instrument which best enables him to seize and extract the tooth? He is guided in the selection of the forceps by the position of the tooth, and chooses the instrument that is curved in proper manner to grasp it most securely. Is the responsibility of the obstetrician less than that of the dentist? Is it not incumbent upon him to ascertain positively, in every case requiring artificial delivery with forceps, the position of the head and to adjust the forceps in such manner that he can extract it according to the natural mechanism of labor.

With the aid of anæsthesia and the whole hand, if necessary, introduced within the vagina, no excuse exists for failure to clear up any doubt regarding the position.

Let me repeat what is stated in the beginning of this communication: "Labor is absolutely a physical act, accomplished according to a well defined mechanism; therefore, the laws governing the application of artificial aid should be precise and absolute." Only until these laws are established and followed will there exist a uniformity of practice in the use of the forceps.

The advice of eminent obstetricians that one pair of forceps should be made to answer for all operations has had, and still has, its evil influence. In no other operation, and in no other special work, is the operator hampered by such advice.

The surgeon has forceps, scissors, knives and needles curved at different angles on both the flat and edge, and he uses them to the best advantage. Why not tell him to discard all these, as they unnecessarily complicate *his* armamentarium? Tell him that one of each, with a proper curve, will answer for all of his operations, and he should learn to employ it only. I claim it equally unscientific to bind the obstetrician to a single pair of forceps, with which he must accustom himself to do all this class of work; and I repeat, "he should be equally expert with several, and employ one or another, according to the circumstances of the case, always selecting that instrument which best enables him to apply the blades to the sides of the head."

THE CHOICE OF OPERATION FOR STONE IN THE BLADDER.

Read in the Section of Surgery and Anatomy, at the Fortieth Annual Meeting of the American Medical Association, June, 1889.

BY A. T. CABOT, A.M., M.D.,
OF BOSTON, MASS.

In order to make the drift of this paper at once clear, I wish to state at the outset the conclusions I have reached by a study of the results of others in stone operations, and from the moderate experience I have had in these cases myself. Unfortunately, residence in a region where stone in the bladder is rather rare has made the accumulation of personal observations slow, but, on the other hand, my association with Dr. Bigelow has given me unusual advantages in getting an understanding of the operation which he devised and christened "litholapaxy," and of which I shall especially speak to-day.

In my opinion, we have in litholapaxy the operation of choice for the removal of most stones. While this is the rule, there are exceptions to it,

and the varying conditions surrounding stone in the bladder, will now and then lead us to choose some other operation for their safest removal. The surgeon who best appreciates these varying conditions, and selects in each case the operation which most surely avoids the dangers surrounding it, will arrive at better results than any advocate of a special operation, however expert.

I realize that some objections have been urged against litholapaxy, and that superior advantages have been claimed for other methods of stone removal. I shall try to fairly consider these objections, and to justly appreciate the strong points of other operations. Before entering seriously upon our subject, I wish to note one of these objections which seems to me to merit no extended consideration, but which has received a certain amount of weight from the unsupported assertions of some of the German surgeons. It has been urged by them that litholapaxy requires a special skill for its performance, and should not, therefore, be commonly employed. Certainly, none but qualified surgeons should undertake any operation for stone in the bladder, and it seems to me that the question to be discussed is, not which operation is safest in the hands of a tyro, but rather this: By what use of the different methods of stone removal can a competent surgeon accomplish the best results? In modern surgery the test of merit is looked for in results. No operation, however brilliant, can claim superiority over rival methods if its death-rate is much higher than theirs. The best operation is the one that saves the most patients, unless some serious interference with bodily function more than counterbalances the gain in safety.

Let us examine the results of the various operations for stone, in respect to their rates of mortality, their interference with bodily function, and the completeness of cure which follows them. We have, in general, three methods of operation to choose among, namely: perineal lithotomy, suprapubic lithotomy, and litholapaxy. Perineal lithotomy may be again subdivided into median and lateral lithotomy. We have here several wholly different methods, each of which has certain advantages over the others and each of which, on the other hand, has its own difficulties and dangers, to be recognized and avoided. The cases for which these operations are to be considered and selected, also differ vastly in their conditions and complicating surroundings, so that it may well be seen that each case should be studied for itself, and the operation chosen which best meets the difficulties and avoids the dangers present in that particular instance.

First, looking at the rates of mortality obtained by these operations, we find at once that we cannot properly compare the results in patients of very different ages. The mortality in children and young adults, after any operation upon the bladder, is distinctly less than it is in advanced age, and, as we shall see later, there are at different ages changes in the organs concerned which make marked differences in the manner in which the various operative measures are borne. For the sake of convenience in this study, cases may be grouped in three categories:

Children, from birth to 14 years of age.

Adults, from 14 to 50.

Old men, from 50 upwards.

This division of the cases is somewhat arbitrary, but the ages of 14 and 50 are selected as marking, more or less accurately, certain epochs in the development and decay of the genito-urinary organs. At about 14 we look for the changes in the size and sensibility of these organs which accompany the arrival at puberty; and at 50, senile changes in the prostate and bladder begin to make their appearance, which often interfere seriously with the healthy performance of the functions of those parts. In the collection of statistics those tables have been used in which operators have published all of their results, and reports of single cases are not included. This is done to avoid the danger of forming tables of exceptional results; for single cases are more likely to be reported when successful than when they resulted unfavorably. Further, owing to the recent improvements in technique and to the influence which the general adoption of antiseptic measures has had upon surgical diseases, it is evident that the statistics of old times cannot be accepted in settling the present status of these operations; and, therefore, only cases occurring since modern methods came into vogue have been used in this study.

SUPRA-PUBIC LITHOTOMY.

Operator or Reporter.	Children.				Adults.				Old Men.			
	No. of Cases.	Recovered.	Died.	Mortality.	No. of Cases.	Recovered.	Died.	Mortality.	No. of Cases.	Recovered.	Died.	Mortality.
König					1	1			4		4	
Werewkin	24	17	7									
Assendelft	78	76	2		24	24						
Cabot					1	1						
Tremaine	1	1			1	1			1	1		
Thompson									6	5	1	
Guyon									8	5	3	
Mikulicz	3	2	1									
Walker	3	3										
Garcia	43	37	6									
Recent foreign	55	42	13									
Recent British	33	33										
Total	240	211	29	12%	27	27	0	%	19	11	8	42.1%

Garcia, from a collection of 106 cases of all ages, calculates a death-rate of 24.4 per cent. Tuffier, from 120 cases without regard to age, has a death-rate of 27 per cent. Dulles, among 231 adults, finds a mortality of 32.4 per cent., while among 132 children there was a death-rate of 21 per cent.

LITHOLAPAXY.

Operator or Reporter.	Children.				Adults.				Old Men.			
	No. of Cases.	Recovered.	Died.	Mortality.	No. of Cases.	Recovered.	Died.	Mortality.	No. of Cases.	Recovered.	Died.	Mortality.
Freyer	. .	. .	. .	. .	81	77	4	. .	69	68	1	. .
Keegan	114	110	4	. .	. .	. .	. .	. .	. .	. .	. .	. .
VanderVeer	. .	. .	. .	. .	10	8	2	. .	11	8	3	. .
Kerr	. .	. .	. .	. .	15	15	. .	. .	7	7	. .	. .
Cabot	. .	. .	. .	. .	9	9	. .	. .	33	31	2	. .
Mass. Gen'l Hosp.	1	1	. .	. .	34	32	2	. .	57	57	9	. .
Total	115	111	4	3.5%	149	141	8	5.3%	188	173	15	8 %

[1] One from bronchitis and pneumonia.

Guyon had a mortality of 5.2 per cent. in 647 cases of all ages. Usigli calculates a mortality of 4 per cent., while Tuffier places it at only 3 per cent.

PERINEAL LITHOTOMY.

Operator or Reporter.	Children.				Adults.				Old Men.			
	No. of Cases.	Recovered.	Died.	Mortality.	No. of Cases.	Recovered.	Died.	Mortality.	No. of Cases.	Recovered.	Died.	Mortality.
Freyer	143	143	. .	. .	. .	. .	. .	. .	. .	. .	. .	. .
Werewkin[2]	147	138	9	. .	. .	. .	. .	. .	. .	. .	. .	. .
Cabot	3	3	. .	. .	. .	. .	. .	. .	1	. .	1	. .
Mass. Gen'l Hosp.	16	16	. .	. .	2	2	. .	. .	1	. .	1	. .
Carrow	46	44	2	. .	76	71	5	. .	14	13	1	. .
Rivington	. .	. .	. .	. .	1	. .	1	. .	3	3	. .	. .
Total	355	344	11	3.1%	79	73	6	7.6%	19	16	3	15.7%

[2] Seven fistulæ.

Freyer gives the following rates of mortality after lateral lithotomy, arranged according to age. They are calculated from 987 cases occurring during the year 1883 in the Northwest provinces of India:

Rate of mortality up to 20 years	. . . . .	5.1 per cent.
" " " from 20 to 40 "	. . . . .	10.7 " "
" " " above 40 "	. . . . .	31.9 " "

Rosenthal, from a collection of 400 cases, deduces the following rates.

Mortality, from 1 to 5 years	. . . . .	3.5 per cent.
" " 6 to 11 "	. . . . .	2.1 " "
" " 12 to 16 "	. . . . .	8.4 " "
" " 17 to 29 "	. . . . .	15.7 " "
" " 30 to 66 "	. . . . .	38.8 " "

These statistics probably give a more accurate rate of mortality for old men than in my table, in which so few cases occur at that time of life.

From these statistics we see that in childhood, judging from the results as to mortality, there is little to choose between lateral lithotomy and litholapaxy. The death-rate in each is but little over 3 per cent. Suprapubic lithotomy is more dangerous, with a death-rate of about 10 per cent. In adult life, the death-rates alter somewhat in favor of litholapaxy. As the prostate and urethra enlarge, and the parts about the neck of the bladder become more vascular, the dangers incident to cutting through them increase. On the other hand, the increase in the size of the parts makes the performance of litholapaxy comparatively easy and safe. Suprapubic lithotomy keeps its place as a more dangerous operation than either. In old age the rates of mortality are overwhelmingly in favor of litholapaxy. While the dangers attending all the cutting operations have increased very greatly, the mortality after crushing is very little higher than it was earlier in life.

INTERFERENCE WITH THE FUNCTION OF THE PARTS.

It is somewhat exceptional to see a serious loss of function follow any of the operations for the removal of stone. A litholapaxy, carefully performed, should never cause any lasting injury of the genito-urinary organs. The suprapubic incision rarely causes any after-trouble, although occasionally a fistulous opening remains which cannot be closed, and is therefore a constant source of discomfort to the patient. The perineal operations, entering as they do through the neck of the bladder, are much more likely to cause serious trouble. The position of the seminal ducts in the lower part of the prostate, makes their injury by an incision in the floor of the prostatic urethra quite probable. The median operations may sometimes avoid this when the stone is small enough to be removed by stretching the neck of the bladder, but even then lacerations are likely to occur. The lateral incision has the advantage that, while giving more room, it endangers only one of the ducts. The erectile tissue, known as the caput gallinaginis, is also liable to injury, and this may cause sterility. Incontinence is an occasional result of the perineal incisions, owing to their interference with both of the sphincters of the bladder; and fistulæ, though rare, do sometimes occur, and may be very persistent and troublesome. Injuries of the rectum during lateral lithotomy are unnecessary and accidental; they still happen often enough in the hands of expert operators, to make it worth while to take the chance of this into account in deciding upon an operation.

COMPLETENESS OF CURE.

It is a not uncommon experience to see a second or a third attack of stone in the same patient. In order to understand how far this reappearance of a calculus is dependent upon the operation by which its predecessor was removed, let us consider the ways in which a recurrence of stone may come about.

1. A uric acid stone may be followed by another, on account of the persistence or reappearance of the uric acid diathesis. The same may be true, though less commonly, in the case of an oxalic stone, and may even occur with a phosphatic stone due to phospaturia of constitutional origin.

2. The successive escape of several stones from

the kidneys may give rise to several consecutive attacks of stone in the bladder. These stones may be uric, oxalic or phosphatic.

3. A soft, phosphatic stone may be reproduced after removal, if the chronic cystitis and alkaline condition of the urine, which led to its original formation, persists. This is not uncommonly seen in those cases where an obstruction to the complete emptying of the bladder perpetuates the fermentation of the urine.

4. Lastly, if a fragment is left after an operation, it may serve as a nucleus for another stone. The danger of this mischance is greatly increased by any obstruction to the flow of urine, such as is caused by an enlarged prostate. The bladder, in such a case, is often sacculated, so that fragments are more likely to escape removal by the evacuator after litholapaxy, or by the lithotomy scoop and forceps after lithotomy; and if such a fragment be left, it is very unlikely to be voided by the natural efforts of the bladder, but remains in the residual urine. A healthy bladder that completely expels the urine at each act of micturition usually frees itself of such small fragments.

It is plain that recurrences due to the patient's diathesis, in which a new stone forms years after the removal of a former one, cannot be laid at the door of the operation, being as likely to follow one method of removal as another. And the same is true when successive escapes of renal calculi from the kidneys give rise to recurrent attacks of stone. Among my cases, 47 in number, I have seen three instances of the recurrence of uric acid stone due to the patient's diathesis, and have had one case in which calculi of renal origin gave rise to successive attacks of stone in the bladder.

Next, we have the cases in which a recurrence is due to a persistent cystitis with consequent deposition of phosphatic material. I have seen four instances of this sort, all of them occurring in patients with greatly enlarged prostates, and in all of which I was able to satisfy myself conclusively that the recurrence was not due to the retention of fragments. In such cases, the later attacks of stone cannot be ascribed to incompleteness in the operation, but rather to neglect in the after-treatment.

It is obvious that to prevent this sort of recurrence, it is important to entirely relieve the cystitis before allowing the patient to pass from observation, and then to send him away with a clear understanding of the importance of immediately correcting any tendency to alkalinity of the urine or to pus formation. When an obstructed urethra is the cause of the cystitis, the obstruction should be relieved if possible. In case of an enlarged prostate, the evils of retained urine must be lessened as far as possible by systematic catheterization. The moment that any considerable amount of mucus or other evidence of commencing fermentation appears in the urine of one of these patients, thorough irrigation of the bladder must be instituted and kept up until the normal condition is again reached. If milder measures fail to keep the urine in a fairly good condition, or if the catheter causes pain and has to be used very frequently, a prostatotomy may be called for to correct the obstructing condition. It may sometimes seem well in these cases, if the stone is a small one, to remove it by a perineal incision, for the sake of the opportunity to at the same time operate on the prostate and to drain the bladder. Dr. J. P. Bryson, of St. Louis, has called attention to this occasional advantage of a perineal operation for stone. A surgeon selecting such an operation should, however, bear in mind that the perineal operation is about three times more dangerous to life than litholapaxy, and should balance the hoped-for advantage against this certain risk. In one such case, the writer did a combined litholapaxy and prostatotomy; first crushing and pumping out the stone, and then, through a median incision, dividing the middle lobe of the prostate. The operation was no more severe than a simple prostatotomy, and the power of urination, which had been absolutely lost, was restored to a very considerable extent.

Finally, a stone which has for its nucleus a fragment of an earlier stone is obviously the result of an incomplete operation, and it has been urged against litholapaxy that such recurrences are especially liable to take place after it.

In the early days of this operation such instances of incomplete evacuation were more common than now, and were due to a want of thoroughness in the surgeons rather than to a necessary lack of completeness in the operation itself. To guard against such retention of fragments, many operators now make it a rule to always wash the bladder once or twice with the evacuator some days after the operation, before the patient is discharged. These washings cause but little discomfort, and may usually be done without anæsthesia. These washings, if successful in obtaining débris, should be continued at intervals of a few days until fragments are no longer obtained, and in cases of cystitis, where the tendency to the deposition of phosphates is very great, it is a good plan to give an occasional wash with the evacuator up to the time that the urine becomes clear and loses its alkalinity. In using the pump at the time of operation, and in these subsequent washings, the sacculated character of many of these bladders should be borne in mind, and a careful search should be made for fragments which may be caught in pockets. The orifice of the evacuating tube should be turned successively toward each part of the cavity, to dislodge with the current all such fragments, and, lastly, the pouch which so often exists behind the prostate should be searched in this way. For these manœuvres a straight tube is especially adapted and

should, when possible, be used. With a careful observance of these precautions, I confidently believe that a retention of fragments after litholapaxy need be of no more frequent occurrence than after lithotomy. Indeed, it has happened that fragments left by lithotomy have been subsequently removed by the litholapaxy pump.

SELECTION OF OPERATION.

In Childhood.—As the statistics show, the mortality after any operation for stone in children is small. Lateral lithotomy and litholapaxy are very nearly equal in this regard, and both are decidedly safer than suprapubic lithotomy. The crushing operation has the great advantage that it avoids injury to the seminal ducts and the rectum; also that it does not give rise to fistula or to incontinence of urine; all of which are occasional results of perineal lithotomy. An ample experience has shown that the urethra and bladder of a child will tolerate a considerable amount of instrumentation. It would therefore seem wise to use litholapaxy for all small stones or stones of moderate size (from 1 and 1½ to 2 centimetres in diameter), and for stones larger than this to do lateral lithotomy, except when they are very large (3½ centimetres and upward in diameter), and then suprapubic cystotomy is to be resorted to.

The ease with which bimanual palpation can be practiced in children, with a finger in the rectum and a hand on the abdomen, makes it possible to judge, pretty closely, the size of the stone, and so to select intelligently the best operation for its removal. The consistency of a stone is also to be taken into account when litholapaxy is thought of, and stones of considerably larger size than is above indicated may properly be crushed if they are soft and friable. The quality of a stone in these regards may usually be determined with some degree of accuracy by the sensation imparted to the sound and by a knowledge of its probable constituents, which can often be gained by an examination of the urine. Phosphatic stones are usually soft, as are also pure uric acid stones. The urates make a rather hard calculus, while an oxalic stone is exceedingly hard and resistant. Certain other conditions which would lead us to employ some other method than litholapaxy will be spoken of in considering operations on adults.

In Adults.—Whether we consider the danger of the various operations for stone in the adult, or the likelihood of disturbance of function following them, we are led to regard litholapaxy as the operation of choice for stone removal. With the efficient lithotrites and evacuator which made "lithotrity at one sitting" possible, it is now usual to remove stones of considerable size and hardness, and practically it has been found that under ordinary conditions in adults, any stone which is suitable for lateral or other perineal lithotomy is suitable for litholapaxy, and that even stones so large that they would require a suprapubic incision if they were removed by the knife, may, when reasonably friable, be safely crushed and pumped out. A number of instances are on record in which stones between 2,000 and 3,000 grains in weight have been successfully removed in this manner.

The exceptional cases in which litholapaxy cannot be used are as follows:

1. A very large and hard stone may resist every attempt at crushing, especially if it is tightly grasped by the spasmodically contracted bladder.

2. A stone may have as a nucleus a foreign body such as a piece of necrosed bone or a bullet, too hard to crush and too large to pass out through a tube.

3. An encysted stone may be out of reach of the lithotrite.

4. Some writers hold that stricture of the urethra may prohibit litholapaxy. This cannot often happen, for strictures, however close, yield readily to divulsion, which may immediately be followed by the crushing and evacuation of the stone. I have so often seen these two operations successfully done together on an etherized patient, that I can but think this the best practice. While it economizes time, it saves the patient much needless manipulation.

5. False passages may exist, which so interfere with the introduction of instruments that the dangers of the operation are greatly enhanced, and the question of lithotomy is to be entertained.

6. The hip may be anchylosed in a position which interferes with the use of urethral instruments.

7. A stone may be so lodged in the entrance to the urethra, that it cannot be pushed back into the bladder where it can be seized by the lithotrite.

In any of these exceptional cases in which litholapaxy cannot be applied, we have to make our choice between a perineal and a suprapubic incision. The danger attaching to the perineal incision is, according to present indications, decidedly less than that after the high operation, so long as it is applied to small or medium-sized stones; but when large stones are dealt with, the facts are reversed, and the perineal operation becomes the more dangerous of the two. Under ordinary circumstances, as has been said, litholapaxy disposes of the stones of a size suited to perineal removal, and these operations through the perineum have therefore fallen largely into disuse for adult cases. They find occasional application in cases of stones of moderate size where false passages, anchylosis of the hip or the presence of a foreign body make litholapaxy impossible. They may also be used rarely when severe obstructive disease of the prostate makes it desirable to combine prostatotomy with the operation for the removal of the stone. A stone impacted in the neck of the bladder, if it

cannot be dislodged, may properly be removed through the perineum.

Suprapubic lithotomy is to be employed in cases where the stone is too hard and large to be crushed, or where an impervious urethra makes the introduction of a lithotrite or staff impossible. In case of an encysted stone the high operation is also the best, as the thorough inspection of the bladder which it makes possible enables us to treat the condition intelligently. Occasionally, cases are met with in which the prostate is so large that the bladder cannot be reached through the perineum, and here, of course, one is driven to do a high operation if a stone exists which it is not possible to crush.

In Old Age.—The same indications are to be followed as in the adult, except that it is to be remembered that perineal incisions are especially dangerous in old men, and not to be undertaken for the removal of stone without urgent reasons. The suprapubic operation will therefore be called upon to deal with most of the stones which are unsuitable for litholapaxy, and even with this incision, a prostatotomy or prostatectomy may be done after the removal of the stone if the conditions require it. As was seen by the statistical tables, it is in old men that the crushing operation has the most unmistakable advantage. The urethra and bladder, in old age, are very tolerant of the use of instruments, so that litholapaxy is ordinarily well borne.

In conclusion, I wish to say a few words about my own experience with stone operations. I have operated forty-seven times, selecting the operation in each case according to the principles I have set forth above. There were forty-two litholapaxies, nine of them in adults and thirty-three in old men; three lateral lithotomies, all in children; one median lithotomy in an old man and one suprapubic lithotomy in an adult.

Of the cases of lateral lithotomy, two were done before it was believed possible to do litholapaxy in children. In the third case there were two stones, one of which was firmly fixed in the prostatic and membranous urethra. The median lithotomy was done for a small stone impacted in the prostatic sinus, and the suprapubic operation was done for a large, hard stone, in a patient having a bad stricture of the urethra with false passages about it. Among these cases there were three deaths; two following litholapaxy and one after median lithotomy. Of the cause of death in these cases I wish to speak briefly.

Case 1 was a broken-down man of 69, for whom litholapaxy was done for a phosphatic stone weighing 98 grs. The operation went smoothly and the relief from it was complete. The urine cleared up and, after a few days, was passed normally without pain or frequency. In short, he made a perfect recovery from the operation. On the fourth day a chronic bronchitis that he had had before entering the hospital became much aggravated, led to pneumonia and of this he died on the ninth day.

Case 2 was a patient 71 years of age, whom I saw at Bennington, Vt., August 24, 1887, in consultation with Dr. Leroy McLean, of Troy, N. Y., and Dr. Jennings and others of Bennington. He had had trouble with his bladder for three or four years, but had been able to keep about with it till eight days before I saw him, when he had suddenly been seized with an acute exacerbation of cystitis with retention, for which the bladder was aspirated over the pubes. During one of the aspirations the needle touched a stone. When I saw him he was suffering from great pain and frequent painful tenesmus; his pulse was rapid and weak, his countenance sunken. The urine, which had been abundant at first, had almost ceased during the past twenty-four hours. The general feeling at the consultation was that the patient was in a dying condition, and that any operation could only be looked upon as a last effort to give him some more chances of recovery. With this understanding litholapaxy was undertaken. The bladder contained 2 or 3 ozs. of thick, bloody mucus, with almost no urine. The stone was very hard (oxalic), and weighed 1 oz. The operation was a long one. After the stone was out, a catheter was tied in the bladder. There was no reëstablishment of the flow of urine and the patient died on the following day.

In the first case death was due to a pneumonia, and the bladder and kidneys were in good order. In this series of forty-two litholapaxies we have, then, but one death due to the condition of the urinary organs, and even that could not fairly be ascribed to the operation. Among the successful cases were several in which there was distinct evidence of an already existing interstitial nephritis, and yet the patients bore the operation well.

Case 3.—The third death occurred also in an old man (over 70 years of age), broken down by hard labor as a missionary in the tropics, who had just recovered from a severe illness on his voyage home. He had a small stone lodged in the prostatic sinus, which caused much pain with frequent micturition. This stone was removed by a median perineal incision and at the same time the third lobe of the prostate was divided with a probe-pointed bistoury. A drainage tube was fastened in. After doing well for a few days he gradually developed a septic condition of the wound which, in his enfeebled condition, proved fatal. This was the only case in the series of forty-seven, in which the fatal issue was distinctly the result of the operation.

SUMMER DIARRHŒA AND DYSENTERY IN CHILDREN.

Read by title in the Section of Diseases of Children at the Fortieth Annual Meeting of the American Medical Association, June, 1889.

BY N. GUHMAN, M.D.,
OF ST. LOUIS, MO.

Before I commence to read my paper I will ask your patience and indulgence if I wander somewhat from the title. I think the propriety of the digression will be apparent before I conclude.

During the summer months you are all aware of the prevalence of diarrhœa, dysentery and disturbances of the gastro-intestinal canal. I will not take up your time in giving definitions of the terms, or in detailing the pathological and physiological changes which occur in the digestive organs in these diseases, as you will find these stated much better in your text-books than I can describe them to you. What are its causes? Atmospheric changes, heat, rainy and sultry weather, warm during the day and cold at night, impure air and water, insufficient clothing, a badly nourished, fretful and overworked mother or wet-nurse, imprudence on the part of the mother or wet-nurse in the selection of food and drink, over and too frequent feeding of indigestible food, or cooked food which has been kept too long, perhaps in a patent unclean nursing bottle, with a rubber or glass tube attached to it, or which has been kept in an ice-box with various kinds of vegetables, meats, cheese and butter. I suppose most of you have drunk milk or water or eaten butter which had been kept in an ice-box in which strawberries, raspberries or canteloupes had been stored away to be kept cool until used, and no doubt all of you have noticed the effect of placing such articles in the same ice-box. I look upon ice-boxes, in which there are placed all sorts of decomposing and fermenting articles, such as we generally keep for our table use, as breeding boxes of bacteria and microbes and all kinds of germs. Of course I am aware that we cannot have a separate ice-box for each kind of food we eat. Another point to which I desire to call your attention is the use of ice in drinking water. We should not put the ice in the water we drink. It is far preferable and less dangerous to cool the water by keeping it near the ice. You all know that all the ice is not as pure and clean as it should be. Ice-boxes need ventilation and the use of care in selecting the articles which are placed in them as much as our dwellings. These points may be foreign to the title of my paper, but I consider them very important points for us to remember. I have no doubt that bacteria and microbes play an important part in these diseases.

Is dentition of children the only cause of diarrhœa and dysentery during the summer season? I doubt it. During the winter months the mothers come to your office with their babies and say: "My baby has a cold and the snuffles;" and during the summer, "dentition;" so that in summer they ascribe the trouble of dentition to diarrhœa, and in winter to diseases of the respiratory organs. The question may be asked, may not the irritable and swollen condition of the gums, which we see existing in some children, cause diarrhœa through a reflex action of the nervous system? If you take notice you will see that this condition of the gums occurs only where a child is broken down more or less from diarrhœa and deficient assimilation of food. You do not observe it in healthy children.

What are the varieties, symptoms and character of summer diarrhœas and dysenteries, simple and inflammatory or dysenteric diarrhœa? The above mentioned causes may produce either of these troubles; it all depends on circumstances—in which direction it strikes. It may produce cholera infantum under certain conditions. I think these diseases are closely allied to each other. In the beginning of the attack we first observe vomiting of indigestible food, curdled and cheesy milk. I suppose many of you have seen children vomiting a white coagulated mass of cheesy material, tough like rubber, elongated and moulded by the œsophagus as long and thick as a thumb. It seems to me it would take some time for the formation of such a mass, and much longer to expel it from the stomach. The physician should be very careful not to make a mistake when he is called to a child which is vomiting, or an empty retching symptomatic of, caused by, or a forerunner of cerebro meningitis or other brain lesion, where the former is caused by local irritation and the vomiting is easy, with very little straining, while in the latter the effort of vomiting is preceded by a little hacking cough and retching, with vomiting of a little mucus or a yellowish-green fluid, although you may have the same condition in acute gastritis; during vomiting or immediately afterwards you have an action of the bowels of indigestible food and fæcal matter of a more or less thin white, grayish color, curdled and of an acid odor; or the discharges from the bowels may be of a greenish color, intermixed with white lumps, casein; and then at last comes the dysenteric form, tenesmus, with a little mucus and streaks of blood, or a yellowish, slimy mucus, with some fæcal matter and blood of an offensive odor. At this point I would draw your attention to cases which may occur in summer as well as in winter, where the child lies on its back, legs drawn up, with a continued straining, and passing nothing but red blood, mixed with a little mucus and no fæcal matter, and with scarcely any odor. What might we expect in such a case? Probably an invertion or intussusception of the large or small bowel. It may be near the rectum, or higher up. If it is in the lower part of the bowel, we may be able, by a digital examination,

to feel the inverted bowel in the lower part of the colon; if higher up, we might make our diagnosis with a flexible catheter or bougie, and if we are in doubt about our diagnosis I would give the doubt the benefit.

What would be the treatment in such a case? First elevate the child's pelvis so as to favor gravitation towards the diaphragm and chest, and fill up the bowels with warm starch water, with a long or short flexible tube attached to a fountain syringe, according to the location of the obstruction, whether low or high up, or the inflation of air. If this is not successful I would advise laparotomy, the same as in a grown person. I do not know why the operation should not be performed as well in a child as in an older person, although laparotomy is not often performed in children under such circumstances. We all know that a child in such a condition will die if not relieved, and I do not see why laparotomy is not as justifiable as tracheotomy in obstruction of the larynx.

What treatment should we follow in case of diarrhœa and dysenteric diarrhœa? First remove the cause and make correction in the food and drinks. Do not overload the stomach. Let the child have plenty of fresh air. Medication should be very simple and mild, such as emollients, demulients, antacids, antiseptics and peptonoids in some form. Be careful of opiates where you have fever or congestion of the conjunctiva, or the least indication of brain lesion. Astringents should hardly ever be used. I never derived any benefit from them, and I have always regretted their use when I employed them. If the fault is in the secretions, small doses of hydrargyrum cum creta or chloridum mite with lactopeptine, which will promote and stimulate the secretions of the digestive organs. If the diarrhœa is of an acid odor, diluted lime water, bicarbonate of soda with the chalk mixture; and if there is any indication for an antiseptic I add some listerine, carbolic acid or creosote. In inflammatory or dysenteric diarrhœa, if the stools are greenish, slimy, mixed with mucus and accompanied or preceded with pain and tenesmus, my favorite remedy is lactopeptine added to a castor oil emulsion, with a little paregoric or McMann's elixir of opium, if not contra-indicated, warm cloths or hop and flaxseed poultices to the abdomen. I always give my little patients enough to drink. I instruct the nurse to get a large piece of ice, wrapped in a blanket, put it in a large dish and keep it in the sick-room, so as not to require them to run up and down stairs to the clean ice-box, which I have described before. I order the medicine, if it is fluid, lime water, some good whisky or brandy, also a soda bottleful of rice, gum arabic and barley water in the dish near the ice, to keep it cool. I always make it a rule, if possible, to look at the stools before I prescribe. If they come to my office, I require them to bring the last two diapers with them. I prefer to look at them myself, rather than get an imperfect description from the mother or nurse. They will not tell you of the indigestible food, such as potatoes, meat, apples and all kinds of seeds from fruits. They very readily tell you the child is no better, and the medicine did not do any good. Hold up the diaper and ask the mother if she carried out your instructions. Of course she will excuse herself—say that the child picked it up from the table, or got it from its little brothers or sisters.

Gentlemen, you are all aware that we have not so many cases of summer diarrhœas and dysenteries, or any other disease, now as we had in former times. Why? Because the public is better educated in hygienics, they occupy better houses and more room, our cities are better sewered and drained, and sanitation is better in our large cities than elsewhere. There is more cleanliness all around.

Since writing my paper I read the report made by Dr. Henry Tomkins before the British Medical Association in Glasgow, on bacteriological researches in connection with summer diarrhœa, as he had studied it in the town of Leicester, where he resided, and published in the *British Medical Journal*, August 25, 1888. It will be very interesting to all of you and I have no doubt that we will all profit by it, and if the Chairman will allow me to read it I will do so.

"*Bacteriological Researches in Connection With Summer Diarrhœa.*—Dr. Henry Tomkins brought this matter before the British Medical Association at its recent meeting in Glasgow. He alluded more particularly to the subject as he had studied it in the town of Leicester, where he resided (*British Medical Journal*, August 25, 1888.)

"In approaching the subject two facts were to be borne in mind: (1) That all diarrhœas, not some diarrhœas, were often only a symptom of varied morbid conditions, as pointed out at the Cardiff meeting of the British Medical Association by Dr. Vacher; but, after all due allowance made, there undoubtedly remained a large residue of cases of a specific or special nature, constituting a disease *per se*, as much so as true Asiatic cholera; (2) that that disease was not a disease of infancy or early childhood only, or even for the greater part. Exact observation showed that the bulk of sufferers from it where it prevailed were of more mature years, though, owing to the mortality occurring almost exclusively amongst young children, this fact had often been overlooked. Of all English towns Leicester was, par excellence, the home of this disease, if its mortality was to be taken as a true criterion of its prevalence. During the past three years, since holding the office of Medical Officer of Health there, Dr. Tomkins had paid special attention to the

subject. It was easy to disprove that many of the reputed cases gave no satisfactory explanation of the disease. Many of these affect only the infantile population, and affect these more or less throughout the whole town, whereas the prevalence of the disease was confined to certain well defined low-lying districts of the town and affected all ages and occupations, etc., within those districts. The cause must be something common to every resident within those districts, which something was apparently absent in other parts of the borough. The only things or conditions common to all were food supplies, water and air. The two former were the same throughout the whole town; there remained, therefore, only the air. During the past three years Dr. Tomkins had undertaken a large series of observations on the air, with special reference to the microbic forms of life contained therein. The general result showed that the air of the diarrhœa district of the town contained three to six times as many microörganisms and their germs as the air of the non-affected districts. These microbes (or certain of them) grew in a distinctive manner when artificially cultivated, and were capable of producing diarrhœa; or, perhaps more correctly speaking, the products of their artificial cultivation were capable of producing diarrhœa in the human subject. At present Dr. Tomkins was endeavoring to isolate and single out the particular form or forms which were most concerned in this. The organisms and growths obtained from various tissues, organs and intestines in fatal cases of diarrhœa give like results. A very probable explanation of the undue prevalence of diarrhœa in Leicester, or rather in certain parts of the town, was found in this excess of aerial microbes and germs, and this excess might be satisfactorily accounted for in the following way: Since 1850 (from which date the prevalence of diarrhœa appeared to have commenced and increased) the whole of the area of the "diarrhœa district" of the town had been subjected to a pollution with organic filth, more or less of an excremental character. This, acted upon by the heat of the summer sun, amply sufficed for an enormous production of bacteria. Imperfect and filthy sewers, containing much deposit, in the same way contributed to like results. Meteorological observations during the summer months of 1885, 1886 and 1887 showed that as soon as the earth, at a depth of one foot, reached about 62° F., the disease broke out. At the time of writing (July 23, 1888) this subsoil temperature had not yet been reached, and the outbreak had not yet commenced for this year. In addition to the need for more exact isolation and identification of the "diarrhœa microbe," it was of equal importance to study how this and other bacteria acted in producing disease; whether it was probable by the production of some poisonous material of an alkaloid character, such as ptomaines or leucomaines. These inquiries were of supreme importance to the physician and clinical observer, as well as hygienist, but could hardly be expected to be carried on by an ordinary health officer, with multifarious routine duties to attend to. Such questions as these required the whole time and attention of specialists."

IS SENN'S GAS TEST INFALLIBLE AND ALWAYS DEVOID OF DANGER? TWO CASES OF SHOT WOUNDS. CONCLUSIONS.

Read before the Mississippi Valley Medical Association, at its meeting at Evansville, Ind., September 11, 1889.

BY H. C. DALTON, M.D.,

SUPERINTENDENT CITY HOSPITAL, ST. LOUIS.

I report to-day one case of laparotomy for shot wound, and another in which an operation ought to have been performed, and would have been, had I not been deterred on account of the failure of the Senn method, being led thereby to believe that the intestines were intact. It is not always pleasant to report our failures, but believing it a duty we owe the profession, in order that our statistics may be reliable, I have made it a rule to report all my failures as well as successes in abdominal surgery.

It is true this course may subject me to criticism owing to some sins of omission or commission, but as criticism will teach me wherein I have erred, I shall still be the gainer. Should the criticism be unjust, I trust it will proceed from him only who has never made a mistake in surgery. This apologetic prelude is written to induce you to "be to my faults a little blind," when you listen to the "o'er true tale" of the two following cases:

Case 1.—B. J., colored, æt. 35, laborer; admitted to the hospital October 25, 1888; was shot at a distance of twelve or fifteen yards three hours before admission, after which he was unable to walk, and soon felt a numb, dead sensation in the right leg, followed by pain in the abdomen.

Examination showed a shot wound an inch and a half above and a little to the right of the anus, the probe passing upwards and inwards through the great sciatic notch into the pelvic cavity. The urine was drawn and found to be clear. There was absence of liver dulness to the extent of two inches above the border of the ribs. The patient was suffering from shock and intense pain in the abdomen, referred to the umbilicus. The extremities were cold, pulse 72 and respiration 39, rectal temperature 96.6° F.

Assisted by Drs. Meisenbach and N. B. Carson, and the hospital staff, I proceeded to make median laparotomy, using Senn's hydrogen gas test

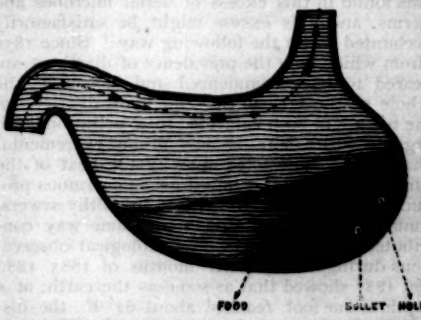
before making the incision. A small hole was made about two inches below the umbilicus, a glass tube was put in and an ineffectual attempt was made to ignite the gas. When the tube was removed the gas escaped through the hole and ignited readily. Upon enlarging the wound the gas escaped with an audible sound. The bullet was found to have entered to the right of, and almost grazing, the iliac vessels. It then entered the cæcum a little to the inner side of the appendix, and passed out an inch and a half above. Twelve holes were closed by the interrupted Lembert suture, iron-dyed silk being used, two in the cæcum (as described above), six in the small intestine, three in the mesentery, and one—the hole of entrance—near the iliac vessels. The bullet was not found, nor were we able to find it post mortem.

After a thorough peritoneal toilet we attempted to return the enormously gaseous, distended intestines, but found, like Banquo's ghost, that they would not down. It seemed our task was like that of Sisyphus, for as fast as we would replace one coil another would "bob up serenely from below," until our patience, as well as our patient, was well nigh exhausted. To make confusion worse confounded, about this time, when we thought our task almost completed, the intestines being nearly all reduced, two or three sutures gave way and the cavity was again flooded with fæcal matter. In the attempt to reduce them the intestines were necessarily subjected to rather rough handling and considerable pressure; hence the rupture. The sutures which gave way were those closing two holes which were very close together, and we found it difficult to locate the exact spot from which the fæces escaped. We accomplished it, however, by a very simple, but, I think, important method suggested by Dr. Carson, *i. e.*, allowing water from the irrigator to play upon the part while making pressure upon either side of the holes. The escape of the gas elevated the water to perhaps a half inch, indicating the exact site of rupture. An attempt was made to get rid of the gas by washing out the stomach and putting a cylindrical speculum into the rectum to facilitate the escape of the gas, but this much vaunted method failed utterly.

Here was a case where the Senn method not only did no good, but absolutely did a great deal of harm; but more anon. The case also teaches a valuable lesson in that it should caution us, no matter how far away the wound of entrance may be, to look out for abdominal injury if the range of the bullet be in that direction. In a conversation with Dr. Senn, some weeks ago, I informed him of the above facts. He stated that he had also been annoyed by the same thing, but it could be overcome by elevating the hips and using a large funnel-shaped towel to produce compression upon the intestines during their reduction. I do not believe that it would have worked in this case.

Case 2.—Wong Gau, Chinaman, æt. 25, laundryman, entered the hospital at 7:25 P.M., October 11, 1888. One hour before admission he was shot by a negro at a distance of ten feet, the bullet entering between the fourth and fifth ribs in the left axillary line.

The assistant who examined him (I was absent at the time) probed the wound and concluded that it did not penetrate the abdominal cavity, a very natural mistake, as there were no symptoms pointing in that direction, except that he had vomited several times, the ejecta, however, containing no blood. When I returned to the hospital, three hours after the injury, the pulse had gone up to 100, temperature 100° F., but there was still entire absence of abdominal symptoms. Suspecting, however, from the direction of the bullet, that it had penetrated the cavity, I resected two inches of the seventh rib in order to inspect the diaphragm. A hole was found in the same about three inches from the thoracic wall. Through this hole I placed a glass tube and applied the hydrogen gas test, which gave negative results, although the tube was moved in various directions and removed several times to see if it was unobstructed. The urine was drawn and found to be clear. Having great faith in the gas test I was satisfied that the alimentary canal was intact. My faith has received several rude shocks, and I am no longer an enthusiastic advocate of the measure, except in certain cases. The diaphragmatic and thoracic wounds were closed with heavy chromatized catgut. Patient died twenty-eight hours after the injury.



The above cut shows the relation of the food and bullet holes to the stomach as revealed by the autopsy in Case 2. The arrows show the course the gas would naturally take in passing up the alimentary canal rather than to displace the food sufficiently to gain exit through the bullet holes.

The autopsy revealed two holes in the stomach and a large lacerated wound of the left kidney. The holes were on the greater curvature, three or four inches below the cardia. They were quite close together (half an inch of septum), each

hole being about half an inch in diameter. The stomach was one-third full of semi-solid food, mostly rice, the consistence of which was so firm hat it failed to run out when the stomach was elevated, nor did any escape ante-mortem. The food plugging up the holes and overlying them, accounts for the failure of the gas to escape. It naturally sought the higher and unobstructed portion of the stomach, and by its pressure plugged up the holes still more securely.

During anæsthesia the patient came near dying from interference with respiration, due to the great gaseous pressure upon the diaphragm. Had there not been large gaseous eructations, partially relieving the pressure, I believe he would have died upon the table. The case teaches that extreme care should be taken in giving the anæsthetic during the gas test. It also teaches that the test is liable to deceive us at a very important juncture, and that we cannot positively depend upon it in gunshot wounds.

In the above case I might have turned the patient on the right side allowing the food to gravitate to the right, leaving the holes free for the exit of the gas. But who would have suspected such a condition as we found in the case, or would have thought of the necessity of placing the patient in such various positions? It is certainly unusual to have a patient with both stomach and kidney so badly injured without some blood being vomited, or being found in the urine, and this assisted the Senn test to deceive us in the case. I object to the use of the gas test in shot wounds for the following reasons:

1. Because it is misleading, not being *always* reliable.

2. Because even if it give negative results, we should operate anyway, as we are not sure that the intestines are not perforated, and statistics give but poor encouragement to those who adopt the do-nothing plan, the recoveries in such cases being less than 8 per cent.

3. Because even were we positive the intestines were uninjured, there are other organs which are almost equally important, such as the liver, spleen, mesentery, etc., which might require prompt attention.

4. Because I believe there is danger of the gas forcing fæces through the wounds into the peritoneal cavity, thereby adding to the gravity of the case. It is said this does not take place, but I am loath to believe it.

5. Because of the additional danger during anæsthesia from interference with respiration.

6. Because of the liability of the sutured holes to be torn open while handling the intestines, especially during the effort to return them to the peritoneal cavity, as in case 1.

7. Because after their return to the cavity, owing to their distended condition, and the consequent pressure upon the diaphragm, it embarrasses respiration, *and hence adds to the shock*. I believe this to be a valid and most serious objection to its use. He who can put his patient to bed with the least shock, *cæteris paribus*, has the best chance of seeing him recover, for shock is the cause of death in the vast majority of cases; and certainly the liability to death during anæsthesia, while not probable is more likely to occur with the use of the gas than without it, and hence should be taken into account.

Those who have attempted to close the abdomen over intestines distended by gas can fully appreciate my statement. I imagine that a well person with intestines so distended would suffer from colic, and a feeling of oppression consequent upon the great gaseous distention. Why should we add such additional danger to our patient, already in such a perilous condition, when a feather's weight may turn the scale against him? It may be claimed, and I grant it, that the gas soon becomes absorbed, but why subject a patient to an additional risk, even for a short time, at such a critical period? Then too, the preparation and administration of the gas takes up valuable time, it is true not a great deal of time, but when one remembers that the saving of every moment in these cases is vitally important, he naturally is anxious to get through at the earliest moment consistent with the proper management of the case.

Senn reports a case of shot wound of the intestines in which, after sewing up all the holes he could discover, he was enabled by the use of the gas to find another, low down in the rectum, which he could not have found without it. I imagine such cases are very rare, and do not counterbalance the harm which the gas may do in other directions. I would not leave the inference that I have discarded the gas test. I would use it in shot wounds of the back, and low down on the sides of the abdomen, where I could not positively determine whether or not the peritoneal cavity had been penetrated. In other words, where we are in doubt as to the penetration use it, and if we get affirmative results, operate. I think the test is more appropriate to stab wounds, for there we are often very much in doubt as to whether or not the intestines are wounded. When we are so uncertain we should use the gas test; if it give negative results we need not operate, especially as we know that many penetrating stab wounds do not wound the intestines, whereas it is quite the exception—in fact a *very rare* occurrence for a penetrating shot wound to fail to do so.

So I conclude that the fact that a shot wound of the abdomen is penetrating, justifies laparotomy, for, unless the ball be a spent one (a very unlikely occurrence), we can be almost certain that there is serious injury to the viscera. This is a rule to which the exceptions are too few to have any weight.

The gas test then in this class of cases is unnecessary. In penetrating incised wounds, however, the character of the injury is such that the viscera may, and in fact often do, escape.

I believe that this question should be thoroughly discussed, and the truth evolved, not only for the good of our patient, but also for the medico-legal aspect of the case. Self-protection demands that the status of the test be definitely settled. I have not been able to find that any one has controverted Dr. Senn's claim that "rectal insufflation of hydrogen gas is an infallible test in the diagnosis of visceral injury of the gastro-intestinal canal in penetrating wounds of the abdomen." My experience will not allow me to subscribe to the statement.

I propound the query "Is the question settled? and answer in the negative, believing it to be still *sub judice*. What say you after thoroughly weighing the facts in the above cases?

THE CLINIC.

THE CLINICAL HISTORY OF A CASE OF CYSTITIS FOLLOWING TUBERCULAR KIDNEY, THE CHIEF SYMPTOM OF WHICH WAS CONTRACTED BLADDER; TREATED BY HOT WATER DILATATION.

BY I. S. STONE, M.D.,
OF LINCOLN, VA.
MEMBER AMERICAN MEDICAL ASSOCIATION, VIRGINIA MEDICAL SOCIETY AND STATE BOARD OF MEDICAL EXAMINERS; SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION; FELLOW OF THE BRITISH GYNECOLOGICAL SOCIETY, ETC.

Miss M., white, æt. 22 years, came under my care in April, 1885. She had for two years had cystitis, for which she had been treated in Washington, D. C. She was somewhat anæmic, although but slightly reduced in flesh. Her family history was exceptionally free from suspicion of tubercular disease, although her father had recently died of supposed carcinoma of the liver and stomach. The patient complained of pain extending along the ureter to the bladder from the right kidney. The pain was not constant, but was increased by pressure over the kidney or by severe exercise, as in riding or jumping, etc. The urine had sp. gr. 1020, reaction neutral, vol. 24 ozs. per diem; was heavily charged with pus to nearly one-third of its vol. Microscopical examination revealed abundant epithelium apparently from the bladder, besides pus corpuscles and abundant amorphous urates. No casts, very slight amount of albumen.

The usual treatment for cystitis gave so little relief that I sought for the cause in the urethra and found two small papillomata, the removal of which gave some relief. She was passing urine every hour or two and was obliged to continue this through the night, causing loss of sleep and consequently loss of strength. The patient, in September, 1886, passed from my care and entered Columbia Hospital for Women, D. C., where she steadily grew worse and was discharged as incurable in December, after nearly two months' residence therein.

I was again called to see the patient and found her quite wretched and anxious to end her miserable existence. There was constant dribbling of urine, great pain in region of the bladder, extending to both kidneys, although worse on the right side. Her temperature was 102°–103°, pulse 110 to 120, attended by rigors and other septic symptoms. Her kidneys were not supposed to have to do with her condition; no tumor or other disease having been discovered by those recently in charge of her. Again hoping to benefit the patient by wise counsel, and to satisfy the demands of urgent friends in Philadelphia, she was taken to Jefferson Medical College Hospital and placed under the care of Dr. S. W. Gross, January 15, 1887. His diagnosis was "contracted bladder from cystitis with some pyelitis," which latter he thought needed no special treatment. Accordingly he prescribed hot water irrigation of the bladder, dilatation of the urethra, and argent nitr. sol., xx ad ℥j every five days. During the seven weeks' residence of the patient at the hospital, her bladder increased its capacity for urine from zero to ℥ij. The general condition of the patient had greatly improved, and she was greatly encouraged with the prospect of recovery. Dr. Gross failed to detect any tumor or other disease of the kidney —save the pyelitis—and doubted the expediency of any surgical examination.

The patient was again brought under my care in March, 1887, and the treatment instituted by Dr. Gross continued. By increased pressure the bladder reached a capacity of 8 ozs. forced distension, with hot water. At this point, Dr. Gross suggested the stretching cease, but it soon became apparent that contraction would again take place, and the stretching was continued until a capacity of 19 ozs. was reached. This treatment was continued for many weeks and gave the patient great relief from the bladder symptoms. She could retain her urine for eight hours, although generally was called up twice during the night. The quantity of pus in the urine constantly diminished until about $\frac{1}{15}$ by volume remained. Sulphate of morphia gr. ¼ with sulph. atropia gr. $\frac{1}{100}$, hypodermatically, were always required to afford relief from pain during the distension. The anodyne was given only once in five days and a gain of from ℥j to ℥j secured at each sitting. This increase in capacity with morphia was sustained by daily irrigation and distension by means of hot

water, temperature 115° to 125° F., until the time would again arrive for the administration of morphia and renewed distension. Hydrochlorate of cocaine was useless in mitigating pain, both from the distension, and that from the silver solution (strong solutions of cocaine, 10 and 20 per cent., were used).

The galvanic current was used daily for six weeks of this period of treatment, but an estimate of its value could not be made, owing to the continuation of other treatment. A ball syringe was used to inject the bladder through a No. 12 soft catheter. Various means were tried to estimate the force required to secure an increased capacity, but all failed; moreover, the syringe gave entire satisfaction. The amount of pain produced by distension with hot water always proved a safe guide, and no bad symptoms followed this treatment, save slight hæmorrhage which invariably ceased when the bladder was allowed to contract. This hæmorrhage always resulted from the distension if any important gain was made in capacity. It would appear that the bladder was contracted in folds which bled when separated. This bleeding ceased when the bladder was fully opened up to 18 or 19 ozs. Iodoform in sterilized muc. acaciæ was used with great benefit, so far as could be estimated by the statement of the patient after the treatment by distension ceased. The iodoform mixture was thrown in the bladder with a syringe on alternate days, and the bladder would retain some portion of this until the next injection.

This case furnishes additional evidence of the amount of speculative knowledge of renal diseases at the present time. Although the pain was not characteristic of either calculus or malignant disease of the kidney, we know that in cases of renal calculus the pain varies greatly in character and intensity. I am fully convinced that all such cases as the one being described should have a surgical exploration made, and would have resorted to it earlier in this one but for the advice of counsel. I was confident that I had discovered a tumor of the right kidney a year before this, but as it did not continue to develop, concluded that it was a temporary distension of the kidney from an obstructed ureter.

The microscope also failed to discover positive renal disease, as shown by Dr. Brown's examination of the sediment August 7, 1887 (Microscopic Laboratory, Detroit, Mich.): "The sediment is composed entirely of urates, pus and epithelium. The kidneys are apparently not at fault."

During the first half of the succeeding year I was abroad and unable to continue the treatment of the case, and she accordingly remained with the nurse who had previously had charge of her, and who continued the dilatations from time to time. On my return she was again brought under my care and I found her retrograding. There was some loss of flesh, and a decided bronzing of the skin. In September, 1888, during the Congress of Physicians and Surgeons in Washington, I had my friend Dr. Edwin Ricketts, of Cincinnati, see the patient, who fully agreed with me as to the necessity for surgical treatment of the kidney. Accordingly, in November, 1888, I made the usual lumbar oblique incision, and on reaching the kidney found it very hard and firmly adherent to its capsule, so as to render an examination of its pelvis very difficult. A fine needle was thrust in every direction through the mass without finding a stone. The nature of the disease appearing to be malignant, and the adhesions so strong, the wound was closed for prudential reasons. She soon recovered from this examination, and returned to her home with poor prospect for life or health. Intestinal complications occurred in three months and the patient died of inanition in March, four months after the exploratory operation.

Autopsy, twelve hours after death, disclosed healthy left kidney double its normal size. Bowels distended by flatus. Right kidney also double the normal size, densely adherent to everything, including liver, intestines and spinal column, so that a reckless dissection was necessary to obtain a portion of the growth for examination. The remains of the pelvis consisted of a collapsed sac lined with pyogenic membrane, and containing some pus, which could be forced down the remains of the corresponding ureter to the bladder. No cheesy particles could be found in the remains of the kidney, and the appearance strongly indicated sarcoma.

The bladder was similar to those usually found following chronic cystitis, the walls somewhat thickened, but free from any other appearance of disease.

I sent a portion of the growth to my friend Dr. Kemp, of the Hoagland Laboratory, Brooklyn, for examination, whose opinion was that the specimen was indicative of tubercle.

I had frequently examined the urine for tubercle bacilli without result, neither was there cough or other evidences of tubercle elsewhere. My experience in dealing with these cases of chronic cystitis goes to show an invariable causation outside of the bladder. Exclusive of toxicant causes such as the administration of such irritants as cantharides, etc., there appears to be no such disease as acute idiopathic cystitis. Cystitis is therefore remediable so far as the cause is removable. I am quite well satisfied in this opinion after consulting convenient authorities such as Emmet, Thomas, Agnew, W. H. Baker (Vol. ii, Am. Syst. Gynecology), Goodell (new edition), Reginald Harrison ("Surg. Disorders of the Urinary Organs," third edition), etc., also Morris and W. H. Dickinson, London.

It is plainly to be seen that the later writers are acting upon this theory. The length of this report prevents a greater discussion of the sub-

ject, save to say that in the three cases reported by myself[1] cystitis was the chief symptom, and that it was impossible to permanently cure the disease because the kidney was involved. I would also urge early resort to surgical exploration.

MEDICAL PROGRESS.

PTOMAINES AND LEUCOMAINES AND THEIR RELATION TO DISEASE.—DR. JOS. LECONTE contributes to the *Pacific Medical Journal* an interesting article under this caption. He reviews briefly the germ theory of disease together with its recent modifications of interpretation and its outgrowths. With the discovery of toxic germs of diseases, it was at first believed that all the grave symptoms of a germ disease were due *directly* to the presence and multiplication of specific microbes. The first modification of this idea was, that disease in these cases was not due *directly* to the microbes, but to the accumulation in the blood of a poisonous chemical substance, a by-product of microbian multiplication, *id est* the ptomaines which may be regarded as alkaloids of albuminoid decomposition induced by the vital activity of microbes. The writer believes that we are now on the eve of another equally important modification of the original theory growing out of a recognition of the *leucomaines*—the poisonous products of albuminoid decomposition induced by *cell life*. The leucomaines, although formed by normal physiological processes, are highly poisonous, and inimical to health unless speedily eliminated by appropriate organs. If now there should be a failure to eliminate these toxic elements the result would be diseases similar to those produced by disease germs, except that they would lack the property of contagiousness because they are not due to the presence of microbes. The writer suggests that in view of this conception light may be thrown upon the etiology of some of those obscure sporadic and apparently non-contagious forms of fever which often puzzle the physician to classify such as some varities of typhoid, malarial, typho-malarial, continued fever, and perhaps also a host of other indispositions of less severity. In the elimination of the leucomaines, the writer believes with Schiff, that the liver is the organ chiefly concerned. He believes further that this process is accomplished by the splitting of albuminoids (whether of food or of waste tissue) into glycogen (which is immediately converted into liver sugar and burned) and a nitrogenous incombustible residue which is eliminated by the kidneys as urea. Thus leucomaines (and perhaps ptomaines) are rendered innocuous, and at the same time utilized as fuel. If these views should prove true we would have ample justification of the time honored practice of clearing the bowels and stimulating the action of the liver in the early stages of various diseases.

[1] See Medical News, June 26, 1886, for the first case.

THE RELATIONS OF TUBERCLE BACILLI TO THE CELLS.—A. STSCHASTNY reports the results of investigation in this direction made in Dr. Hueppe's Laboratory in Wiesbaden. His material was the spleen and liver of the marmot, the liver of chickens and sparrows and the tuberculous tonsils of man. The results obtained were similar to those of Metschnikoff. He finds that the migratory cells, the blood and lymph channels eat the living and virulent tubercle bacilli; that in their migrations they deposit the bacilli, which they have taken up, in the tissues, and thus prepare the way for the development of genuine tuberculosis or tubercular infiltration. A portion of the leucocytes with their bacilli are converted into epithelioid cells and giant cells containing bacilli. The reporter believes it possible that giant cells also originate in fixed connective tissue cells. The giant cells in animals subject to tuberculosis may suffer a partial or total necrosis. The giant cells of animals not subject to tuberculosis are lasting active structures without apparent phenomena of necrosis, which, just as the physiological giant cells, strengthen the defenses of the organism as the result of a formative irritation.—*Cent. für Klin. Med.*, No. 33, 1889.

STATISTICS OF PASTEUR'S INOCULATIONS.—Pasteur's method of preventive inoculation against rabies has now been employed in 6,870 individuals, some of whom were severely wounded. Proof that the animal inflicting the injury was actually rabid has been furnished in 80 per cent. of the cases, either by experiment or by veterinary examination. The mortality among individuals, bitten by animals which were certainly mad, and treated by inoculation, amounts to 1 per cent., while the mortality of those who were not treated was 15 per cent. The mortality of patients with severe wounds of face and hands was formerly 80 per cent., while in Pasteur's institute it has been reduced to 4 per cent. The English committee appointed to investigate the value of Pasteur's inoculations, reports that Pasteur's method deserves to rank with Jenner's great discovery; the committee consisted of Sir Jas. Paget, Sir Jos. Lister, H. Roscoe and Victor Horsley.

It is interesting to note that so far it has been impossible to demonstrate the virus, much less to isolate it and propagate it in artificial cultures.

SULPHUR AS AN ANTISEPTIC.—SEMMOLA proposes sulphur as the coming antiseptic, most serviceable for use in derangements of the alimentary canal.

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SATURDAY, NOVEMBER 9, 1889.

EARLY DIAGNOSIS BETWEEN BENIGN AND MALIGNANT NEOPLASMS OF THE LARYNX.

The editorial assertion of the *British Medical Journal*, that laryngeal neoplasms which originally show no trace of malignancy *often* assume a malignant character in consequence of the irritation produced by attempts at removal, will be remembered in connection with the case of the late Emperor Frederick the Third. The assertion was apparently based upon the opinion of MR. LENNOX BROWNE advanced to this effect as early as 1875, which position had been accepted as correct by SIR MORELL MACKENZIE and in part, but only in part, substantiated by DR. J. SOLIS-COHEN, inasmuch as he qualified by "occasionally" and "sometimes" in place of "often:" "It occasionally occurs that papillomata become transformed into epithelial carcinoma, sometimes from mere local irritation from cough and pressure, and sometimes from irritation set up by repeated unsuccessful attempts at removal by evulsion." Later, Gottstein, Bosworth and Seiler spoke of the possibility of such transformations under traumatic influence, but without specifying intra-laryngeal operations.

The subsequent discussion in the *British Medical Journal*, resulted on the part of Mr. Browne in the substitution of the word "occasionally" for "often" as expressed in his original opinion, and in the inauguration, among all known laryngologists, by DR. FELIX SEMON, on behalf of the *Internationales Centralblatt für Laryngologie, Rhinologie, und verwandte Wissenschaften* of a "Collective-Inquiry (Sammelforschung) relative to the Transformation of Benign into Malignant Neoplasms of the Larynx in consequence of Intra-Laryngeal Operations."

The final results of the "*Sammelforschung*" will be noticed *in due time*. Just now, it is evident, that to render reliable tabulations thus made special care is requisite regarding the correctness of the original diagnosis—a malignant or a mixed neoplasm, erroneously regarded early in the case as benign, must not be entered up as a transformation. Therefore, as essentially preliminary to the main question and as a subject of importance concerning the treatment of future cases, the *Centralblatt* discusses the early differentiation between benign and malignant neoplasms of the larynx.

With what exultation and pride in the advancement of medical science, as exemplified by the dexterity of the laryngologist and the precision of the microscopist, did we first learn that the German Crown Prince suffered, not from carcinoma, but from simple "pachydermia laryngis;" and with what sense akin to chagrin did it finally dawn upon the profession, that the Prince had escaped the danger and mutilation incident to laryngectomy, only to die, after all, of cancer of the larynx for which the radical operation had been originally proposed.

It now appears that superficial *papillomatous* excrescences are a common and early accompaniment to deep-seated carcinoma of the larynx; or, in other words, a *mischgeschwulst* may easily be present. Evidently, the fault in such cases will be neither in the dexterous extraction of a fragment, nor necessarily in the microscopic examination, but in the assumption that the part represents the whole, and consequently in placing undue reliance upon testimony thus secured.

The inadequate examination of mixed neoplasms has been the occasion of blunders, numerous and deplorable. Even VIRCHOW confesses to such errors in connection with fibromata, and says: "Nothing is more deceptive than the fact that certain parts of a tumor may be formed completely of fibrous tissue while other parts have an entirely different structure, and unless one undertakes a thorough investigation of all parts he is liable to pronounce judgment according to the part only which he has happened to examine. This has occured to myself and I remember especially such a case, diagnosticated as simple fibro-

ma, in which only after relapse and on reëxamination of the original specimen did I discover in it quite small spots of cancerous structure." Remarks which, of course, are equally applicable—*mutatis mutandis*—to new formations other than fibromata.

KRIEG, of Stuttgart, contributed to the *Sammelforschung*, as a case of transformation from a papilloma, one which he subsequently determined, by examination of additional sections from the original fragment, to be a mixed neoplasm: "In the oldest part there is pronounced pachydermia, *i. e.*, marked proliferation of the epithelial coating with inter-overgrowth (*Hineinwuchern*) of vascular small-cell infiltrated connective tissue papillæ. The connective tissue, beneath the thickened epithelial layer, is thickly beset with epithelial nests situated in the alveoli of the connective tissue. There is present, therefore, at the same time pachydermia and carcinoma."

In a case of known primary carcinomatous infiltration of the right half of the larynx which was accompanied secondarily by superficial papillomatous excrescences, fragments which were twice extracted and microscopically examined exhibited only the structure of papillary fibroma. And to cite still another case from the many, in the *Semonische Fall* the first pieces were microscopically those of a papilloma, while fragments removed only five days later gave unmistakable evidences of epithelioma.

Now we have no desire to dethrone our little God—the microscope, but wish merely to limit his power to his own legitimate field of action. These limitations cannot be better formulated than in the concluding words of the author of the *Sammelforschung*:

"The microscopical examination of fragments removed by intra-laryngeal methods in cases of doubtful laryngeal neoplasms, is a valuable but not infallible aid to clinical diagnosis. It should be used in all cases in which it is possible. This, however, is not always the case, as *e. g.* in submucous infiltrating carcinoma, an intra-laryngeal extraction of fragments cannot always be made. Has such extraction been accomplished, then one should never forget; 1, that the examination need not necessarily yield results characteristic of any particular form of tumor; 2, that, even when the examination presents apparently characteristic results, the possibility of a mixed neoplasm should be remembered; particularly so in cases in which the new formation is *clinically* suspicious while the microscope furnishes apparent evidence of its innocence. . . . . The microscopist can give an opinion concerning only the fragment submitted to him, not of the disease itself, unless he discovers in this fragment *positive* indications of malignancy. The examination must not be limited to a single section, but should embrace, in fine sections, the entire fragment submitted, unless the diagnosis of malignancy is with certainty sooner determined. If necessary, the careful removal and microscopic examination of fragments should be several times repeated, unless in the meantime clinical symptoms, which with our present knowledge of symptomatology are irreconcilable with benignity, establish with certainty the malignant character of the neoplasm. In such cases an otherwise indicated radical operation should not be delayed for microscopic confirmation of the diagnosis."

What, then, are the clinical symptoms which will aid so substantially in the diagnosis of certain cases? These have not yet received the detailed consideration which the gravity of the subject demands, but the *Sammelforschung* contains data which materially enrich our literature.

The laryngoscopic aspect of a commencing malignant laryngeal neoplasm is frequently that of a broad-based, semi-globular, or oblong wart. It may be situated at any point but is the more suspicious when, in an elderly individual, it is found upon the posterior third of the vocal cord. The color of this wart varies from white to reddish-gray. The surface, in exceptional cases, may be quite smooth, lending to the tumor of reddish hue the appearance of a fibroma. More frequently it is finely granulated like an ordinary skin-wart, or again, finely branched and villiform so that it is difficult to distinguish from a papilloma.

If benign, the wart would be wholly superficial, but being malignant it is accompanied by a *deep-seated infiltration* which though not itself apparent, yet occasions a relatively greater degree of hoarseness or aphonia, of circumscribed congestion, and later, of impairment of mobility of the vocal cord—the latter symptom being of supreme importance in the differential diagnosis. These, together with an age of over 50 years, the situation of the growth on the posterior third of the vocal cord, and the exclusion of syphilis, tuberculosis, and lupus, render a diagnosis of malignant neoplasm in the early stage, almost a certainty.

TENTH INTERNATIONAL MEDICAL CONGRESS.—The German Imperial Ministry of the Interior has made a grant of 80,000 marks—$20,000—towards the expenses of the International Medical Congress, to be held in Berlin in 1890.

A PHYSICIAN'S RESPONSIBILITY IN MEDICATION.

The present area of medical advance is characterized not only by improvements in surgical appliances, but by numberless additions to the armamentarium of the physician. In our eagerness to try the new, it would seem that some of the cardinal points in drug administration are lost sight of, or at least neglected. From a summary made from many thousands of prescriptions, it would seem that physicians generally pay close attention to dosage, and to physiological action of medicaments in the abstract, but give entirely too little attention to the factors which influence the therapeutic physiological action of drug in a given case, namely, the fugaciousness of action, the term of maximum intensity, the rapidity of absorption and elimination, and the fact that drugs act very differently in varying doses.

It has become a routine practice to give quinine in sthenic fevers, three or four grains at a dose three or four times a day, even in the early stages of fever. Quinine has but little influence in lowering the temperature when the curve is upwards. It is only when the wave has reached its height and is turning, that the drug gives a decided answer and carries the ebb far below the point it would have reached unaided. Again quinine inhibits, in some degree, the rise of temperature if a maximum effect of the drug can be obtained before the commencement of said rise. Such being the case, given the temperature record of a patient, it can be seen at a glance when to apply the remedy so as to obtain the greatest effect with the smallest quantity of drug. No general will spread his troop over a wide territory in straggling line, but endeavor, Napoleon fashion, to mass his men and throw their weight upon the weak point. We have not absolute control of disease, but lead our patient's vital forces to battle with it. Our drugs are auxiliaries. In all forms there is usually a morning remission of temperature. The time to give quinine is after the maximum wan at midnight, and before the morning rise. In this way, 10 grains of the drug will accomplish as much as one-third more of the drug given in divided doses through the day.

Bromide of potash is exceedingly slow in its action, attaining a maximum in six hours, and not being all eliminated in twenty-four to thirty-six hours. Now suppose a patient is taking 20 grains three times a day. By the time the first dose is in full action, a second is ingested, and again a third before the previous doses have been eliminated. Therefore an epileptic taking the above dose continuously has his vaso-motor centres laboring under the impress of not 20-grain doses, but two or three times the quantity.

In contrast, we have nitroglycerin, one of the most fugacious of all the remedies used for continuous action. It attains its maximum in three to ten minutes, and is all eliminated in from thirty to forty minutes. In painful nerve affections, in local congestions and headaches, and in spasm, to obtain a rational effect from it, we must give it not two or three times a day, but almost every hour.

Chloral begins its action fifteen minutes after ingestion, and is mainly eliminated in from two to four hours. When it is desirable to maintain a sedative action over any extended period, either the dose must be repeated or some drug given in combination whose effect is more lasting.

There are many drugs that it would seem best to use in full dose at commencement, and to administer from time to time such increments as will make up the gradual loss by excretion and thus keep the patient under a more or less constant impression of the drug for hours at a time. This, it would seem, is particularly true of opium preparations.

Illustrations might readily be multiplied, but our object is not so much to illustrate as to call attention to the fact, that the smallest part of a physician's responsibility in medication is the abstract dosage—that the question before him is not how much of a drug is needed for a therapeutic response, but how much is needed in the particular case before him to meet all its requirements, and how should it be administered.

THE AMERICAN ACADEMY OF MEDICINE.

As announced elsewhere in this issue of THE JOURNAL, the next annual meeting of the Academy will be held in this city during this month. The aim of the Academy deserves to be better known to the profession. It recognizes the fact that one of the principal objects of the organization of the American Medical Association was to aid in elevating the medical profession of the

United States by every practicable means, and thus securing better care for the public health; and the further fact that the investigations and reports of its committees, especially those on the education—preliminary and medical—of medical men, showed that it had done much to secure the honorable standing of the medical profession in the United States at the close of the first century of American independence, as shown in the general addresses delivered at the Centennial International Medical Congress in 1876. With a desire to supplement the work, so well begun by the American Medical Association, the Academy was organized during that congress with the design of securing the coöperation of those members of the medical profession who themselves had had the advantages of a liberal course of study before entering upon their medical studies. Believing that the advantages which result from the mental discipline gained by pursuing a classical or scientific course of study enables the medical student to prosecute his medical studies more profitably, it encourages the most liberal preparatory training, and advocates ample provision for theoretical and practical instruction by medical colleges. By concentrating its efforts mainly in the direction of securing frequent conference as to the requirements of the age, and the best methods of fitting young men for the study of medicine and the most profitable manner of pursuing their professional studies, it believes that its existence and its efforts serve a useful and an honorable purpose. It is at present engaged upon an important investigation as to the proportion of physicians now in active practice in the United States who have had the benefit of such preliminary training as it advocates. It invites the coöperation of all physicians who not only desire, but who will aid in securing for those entering the medical profession, and who are to fill our places in it in the future, the best equipment for it.

EDITORIAL NOTES.

HOME.

NEW BUILDING FOR THE PHILADELPHIA POLYCLINIC.—The contract for the erection of the new college, hospital, and dispensary building of the Philadelphia Polyclinic and College for Graduates in Medicine, was awarded October 5.

The new structure will rest on a lot 96 feet by 143 feet, about three blocks from the present temporary quarters, and will be of brick, sandstone, and terra-cotta. It will be four stories in height, and will occupy at present only one-half of the lot.

The important features of the building will be the incorporation of the most modern accepted plans in hospital construction.

The system of heating will be by indirect radiation, and the ventilation that of sub-stratum suction. All corners in the building will be rounded to avoid the accumulation of dust. The water-closets and bath-rooms will be in a separate building easily accessible from all parts of the building. The kitchen and laundry will be at the top, separated from the lower floors by an artificial stone floor. The clinic rooms will be on the first floor in direct communication with a spacious waiting-room.

The corner-stone was laid with impressive masonic ceremonies on the 2d inst.

DR. CARL KOELER, the discoverer of cocaine anæsthesia, has been made instructor in Ophthalmology at the New York Polyclinic.

THE AMERICAN ACADEMY OF MEDICINE which meets in Chicago on November 13 and 14, will hold its sessions at the Leland Hotel. Dr. Lester Curtis is Chairman of the Committee of Arrangements. Dr. S. J. Jones is Chairman of the Committee on new members, to whom applications for fellowship in the Academy may be addressed. A cordial invitation is extended by the Academy to physicians to attend its meeting, and especially to those who are interested in a higher standard of qualification for the medical profession, beginning with the preliminary education of students.

FOREIGN.

DR. PHILLIPPE RICORD died in Paris, October 21. He was the world renowned syphilographer, and was very often spoken of as the great American physician of Paris. He was born in Baltimore, December 10, 1800. His father was a native of France, and young Ricord went to Paris in 1820, and took his medical degree in 1826. After a few years he settled for life in Paris, and went to the front rank in surgery. He was Court-Surgeon under the third Napoleon, and was the recipient of numerous decorations. Notwithstanding his advanced years, he was until quite recently a prominent character in Parisian medical society.

TOPICS OF THE WEEK.

THE UNITED STATES CENSUS IN ITS RELATIONS TO SANITARIANS.

From a paper presented by DR. JOHN S. BILLINGS at the annual meeting of the American Public Health Association held in Brooklyn October 25, we make the following extract:

Theoretically we all agree that vital statistics are the foundation of public medicine; but practically, the majority of sanitarians and physicians think that they are not essential to the work of a health officer or Board of Health, although they may be desirable. That the main objects in sanitary work are to see that the water supply is pure, that garbage and excreta are promptly removed or destroyed, that no filth is allowed to accumulate in the vicinity of habitations, that contagious diseases be controlled by isolation and disinfection, and that plenty of fresh air be provided in schools, churches, etc., and that all this can and should be done whether death-rates are known or not. Occasionally it is possible to get up a cholera, or yellow fever, or small-pox or typhoid fever scare, and to thus get a little money for sewerage or for street and alley cleaning; but these spasmodic reforms do not last long, and in most cases do not amount to much. You have got to produce constant, undeniable evidence that the work is needed and is useful; evidence that will convince the press and the majority of the community, and this evidence must be mainly death-rates, to which should be added all the sick-rates that can be obtained.

To give these death-rates you must have a complete registration of deaths and a corresponding enumeration of the population, and you ought to have a complete registration of births.

Before this Association meets again the eleventh United States census will be taken, and its methods, its completeness, and the mode in which its results will be tabulated and published, are of great interest and importance to all who are interested in sanitary science or in public health work in this country.

One of the most important questions, then, to be settled before the census is taken, is: What shall be the boundaries of the special districts of the city for which a separate statement of the population is desired?

For about a dozen of our large cities it is proposed to make a systematic division of the area into sanitary districts having special relations to altitude, character of habitation or of population, etc., and to have special death-rates calculated for each of these districts. This is being done in conference with the health authorities of these cities, and it is hoped that in this way some very interesting data will be obtained which will serve as a foundation for sanitary work in the future. Such districting has been arranged for Boston, New York, Brooklyn, Washington, New Orleans and Louisville, and the work is in progress for other cities. In investigating the details of the records of deaths kept in different cities I have noted deficiencies in a few of them to which I wish to call the attention of all who have to do with the registration of vital statistics. First, all deaths occurring in hospitals should be charged to the ward or district of the city from which the patient was taken to hospital, where this can be ascertained. Otherwise the death-rate in the ward in which the hospital is located will be too high, and in the other districts it will be too low.

Second, the birthplace of the parents of the decedent should be reported. We want to know the race of the decedent—whether he was German, Italian, Irish or American, and to give merely his own birthplace is not sufficient.

Third. It is very desirable that in all cases of deaths of colored persons it should be stated whether the decedent was black or of mixed blood, such as mulatto or quadroon.

One of the most important questions in the vital and social statistics of this country relates to the fertility, longevity and liability to certain diseases of those partly of negro and partly of white blood, and the only way to obtain data on this subject is through the registration of vital statistics.

Under the provisions of the law providing for the census, the living colored population is to be enumerated with distinction as to whether such person is black, mulatto, quadroon or octoroon, and we need the same distinctions for all persons dying during the census year, to enable us to calculate comparative death-rates. Wherever there is a fairly accurate registration of deaths, which now exists in several States, and in over 100 cities, the next census will afford the means of calculating the death-rates, with distinctions of color, sex and age which will furnish important indications for sanitary work.

I have no authority to make specific promises, but I believe that the reports of the next census, in which the members of this Association are specially interested, will be published as soon as it is possible to compile them, and will be distributed to those sanitarians and physicians who need them in their work and who make timely request for them; and thus believing, I do not hesitate to ask the cordial coöperation of all members of this Association to make the data upon which these reports are founded as full and accurate as possible.

CHANGES IN THE GANGLION CELLS AFTER STIMULATION.

The theory has for a long time been held that the change in activity in the central nervous system, that is, the performance of its function by any nerve centre composed of ganglion cells, was accompanied by some physical or chemical change in the cells. This theory has at last received demonstrative evidence in its favor from certain recent investigations. Korybutt-Daszkiewicz[1] has attempted to solve the question whether the activity of the central nervous system is accompanied by changes recognizable with the microscope. His experiments were conducted on two frogs of the same weight and sex. One was kept as a control, in the other the eighth nerve was stimulated by induction shocks for an hour. The cords of both were hardened and stained by Gaule's method with hæmatoxylin, nigrosin, eosin, and safranin.

[1] Archiv. f. mik. Anat., 1889, p. 51.

The nuclei of the ganglion cells were the point of chief interest. These stain red and blue, but he finds that 3.31 to 3.66 times more nuclei stain red in the stimulated frog than in the unstimulated frog. Hodge, who has investigated the same subject, questions the accuracy of this method, thinking that the red nuclei are more superficial than the blue, and that the thinner the section the greater the number of red nuclei. Hodge's method was to stimulate one or more nerves on one side of the body, and then remove the corresponding spinal ganglia on both sides, keeping them together all the time in the hardening and staining fluids, and making simultaneous sections. The treatment is thus absolutely identical, the only difference being that one ganglion has had its nerve stimulated while the other has not. He finds that the stimulated ganglion shows distinct differences; the nuclei in its cells are smaller, the outlines are jagged and irregular instead of round, and there is a loss of open reticular appearance with darker stain. The cell protoplasm shows a slight shrinkage in size, it has a lessened power to stain or to reduce osmic acid, and it becomes finally granular and reticulated. The cell capsule also shows a decrease in the size of its nuclei. These investigations are practically the first undertaken upon this subject, and their importance as confirming the theory of nerve action is great. They indicate, moreover, the importance of applying similar methods in the investigation of so called functional diseases of the nervous system, for they seem likely to render the old distinction between functional and organic disease of no value.—Philip Cooms Knapp, in *Boston Medical and Surgical Journal.*

STEAMSHIP SANITATION.

Among the subjects to be discussed at the meeting of the American Public Health Association at Brooklyn this month (October) is "Steamship Sanitation." The matter is one of considerable importance to the Eastern States, and through them to the whole Union. Owing to the supineness of the Board of Trade and the short-sighted selfishness of the steamship owners, there is a continual danger that whole shipfuls of passengers may be landed at New York, Boston, or any other Eastern port, bearing with them the germs of infection contracted during the Atlantic voyage. The inspection of emigrants at British ports, though carried out, we believe, as a rule, by the medical officers with the most conscientious care which the circumstances permit, is little better than a farce. The emigrants are gathered upon the wharf and at a signal admitted on to a narrow gangway, along which they struggle with their bedding and all the small impedimenta for the voyage. As they issue from the gangway they are hastily inspected, and any case presenting obvious or suspicious symptoms is made to stand aside for more careful examination. Even this rough inspection is better than nothing, and a practised eye will no doubt weed out most of the dangerous cases. If the surgeon of the ship could always ensure the isolation of the suspected cases, a very great step would be taken towards the attainment of the desired end. Unfortunately this is by no means always the case; if the ship is full, the space set apart for the hospital is very apt to be used by the agents for berthing ordinary passengers. If the surgeon protests, he is snubbed, and if he records the fact in his report, which ought, according to regulations, to be forwarded to the Board of Trade when the vessel returns, he is very likely to have the document returned to him by the agents with the intimation that the matter is one which does not come within his province. It is within the powers of the Board of Trade to compel the steamship companies to obey the law as to the reservation of the ships' hospitals for the use of the sick alone; and it is not easy to understand why frequent and repeated breaches of the law are winked at by the officials.—*The British Medical Journal.*

THE ESSENTIALS OF SUCCESS.

SIR ANDREW CLARK, who has achieved a professional reputation which is world-wide, had occasion, in a recent address, to give his views of what is required to make a man a successful physician. In that address he uses the following language:

Firstly, I believe that every man's success is within himself, and must come out of himself. No true, abiding and just success can come to any man in any other way. Secondly, a man must be seriously in earnest. He must act with singleness of heart and purpose; he must do with all his might and with all his concentration of thought the one thing at the one time which he is called upon to do. And if some of my young friends should say here, "I cannot do that—I cannot love work," then I answer that there is a certain remedy, and it is work. Work in spite of yourself, and make the habit of work, and when the habit of work is formed it will be transfigured into the love of work; and at last you will not only abhor idleness, but you will have no happiness out of the work which then you are constrained from love to do. Thirdly, the man must be charitable, not censorious—self-effacing, not self-seeking; and he must try at once to think and to do the best for his rivals and antagonists that can be done. Fourthly, the man must believe that labor is life, that successful labor is life and gladness, and that successful labor, with high aims and just objects, will bring to him the fullest, truest and happiest life that can be lived upon the earth.

THE LATE DR. JOULE.

DR. JAMES PRESCOTT JOULE, who died at Sale on October 9th, in the 71st year of his age, was one of the most distinguished men of science which this country has ever produced, and is entitled to be reckoned one of the greatest of original workers in pure science. His great achievement was his determination of the mechanical equivalent of heat. The consequences flowing from the working out of this problem, which was achieved by Dr. Joule with the most consummate skill and admirable completeness, are to be noted in almost every department of science; upon his demonstrations the whole theory of the correlation of forces is mainly based. The most important practical applications have been in the mechanical arts, but even physiology is his debtor.

PRACTICAL NOTES.

THE DIGESTIBILITY OF BOILED MILK.

It is now very regularly recognized, both by medical men and by the more highly educated section of the community, that it is a wise precaution to boil both water and milk before using them as beverages, and the practice is becoming very common. The growth of pathogenic organisms in these fluids, especially in milk, is often very rapid, and thus diseases may be transmitted from one place to another. The temperature of boiling water puts an end to the life of the microbes, and also to the danger of infection. Another reason why boiled milk is so much used, especially in infant feeding, is that it is supposed to be more easily digestible than fresh milk. If, however, we can draw correct deductions from dogs to babies, it would now appear that this belief in the superior digestibility of boiled milk is founded on error. Dr. Randnitz, of Prague, has recently published, in Hoppe-Seyler's *Zeitschrift für physiologische Chemie*, certain very striking experiments on this subject. He admit, what anyone may confirm for himself, that milk that has been boiled does not, on cooling and the subsequent addition of rennet, form a large coherent clot, as does fresh milk, but a flocculent precipitate of casein is produced instead. He shows, however, by analysis of the milk itself and of the urine and fæces, that much less nitrogenous material is absorbed from milk that has been boiled than from the same milk when fresh. The digestibility of fat is apparently unaltered by boiling; the following figures, however, illustrate the fact just alluded to as to the difference of digestibility of the proteid materials: In three days 15.6 grams of nitrogen were given in the form of fresh milk; of this quantity 13.3 per cent. was found in the fæces; the nitrogen of the urine accounted for 77.3 per cent., so that 9.4 per cent. was retained in store by the growing animal. The animal was next fed on boiled milk, and 10.4 grams of nitrogen were given in that form for two days; 18.6 per cent. of this was found in the fæces, 75.7 in the urine, so that only 5.7 per cent. was assimilated. The belief in the superior digestibility of boiled milk is, however, so widespread, that we should like to hear of the confirmation of the above remarkable results before we recommend mothers to leave off what is, from other points of view, the very praiseworthy custom of boiling the milk they give to their children.—*British Medical Journal.*

TREATMENT OF DIABETES BY ANTIPYRIN.

Dr. Joseph S. Carreau, of New York (*Med. Record*), cites three cases of this disease successfully combated by this remedy. He also states the fact that Dujardin-Beaumetz, at a meeting of the Académie de Médecine, April, 1888, praised the happy effects of antipyrin in certain cases of diabetes, especially when the two symptoms, polyuria and nervous irritation, predominated. Henri Huchard, at the Société de Thérapeutique, February, 1888, said that he employed antipyrin in a case of symptomatic polyuria resulting from meningo-myelitis, with good effects. He gave from 4 to 6 grams daily, and the quantity of urine was brought down from thirty-six litres to four. He also reported a case of diabetes, where he noticed, in a few days, the sugar diminish from 735 to 271 grams a day under the use of antipyrin—two to six grams daily. He also said that the prolonged administration of antipyrin, in his own experience, has never been followed by albuminuria.

M. Panas reported two cases to the Académie de Médecine, April, 1889, where great relief followed the administration of antipyrin. A man aged 38, passing 49 grams of sugar in twenty-four hours, by taking 2 or 3 grams daily during six days, had all traces of sugar in his urine removed. A woman, aged 73, by taking 3 grams daily for a few days, also received similar benefit. —*Canada Lancet.*

SALICYLIC ACID IN TYPHOID FEVER.

Dr. Schakovski (*Thera. Monatsh.*) claims great success from the use of salicylic acid in malignant scarlatina. He has used it in 125 cases. The mortality is but 3½ per cent. The following formula was used:

℞ Acidi salicylici	1 part.
Aquæ destillatæ	75 parts.
Syr. aurantii cort	30 parts.

M. Sig. Give a teaspoonful every hour during the day, and every two hours during the night.

The temperature falls very rapidly after taking this mixture, so that in certain cases, inside of forty-eight hours, the temperature has fallen from 105.8° F. to 100.4° F. All trace of fever vanishes by the tenth day. Nevertheless the author advises the continuance of the remedy for some time, in decreasing doses, to prevent a relapse. All serious complications, such as uræmia, anasarca and diphtheria, are avoided through this treatment. The treatment is ineffectual only when employed too late (after the fourth day of the illness), or where grave complications already exist.—*Medical Standard.*

A REMEDY FOR NEURALGIA WITHOUT MORPHINE.

℞ Antipyrin	ʒ iij.
Ex. cannabis Ind.	
Ex. aconite	ää gr. vss.
Caffein	ʒ ss.
Hyoscine hydrobrom.	gr. T.

Divide into 30 capsules.

SOCIETY PROCEEDINGS.

The American Public Health Association.

The American Public Health Association met this year at Brooklyn, N. Y., for its seventeenth annual session. It occupied part of four days, from October 22 to 25. In the number of its attendance and the quality of the scientific results the verdict, on the part of its *habitués*, has been that the meeting was a success. Not much time was allowed to run to waste on outside entertainments; the unwritten law of the Association being distinctly in favor of giving the minimum of time to excursions, collations and the like. Three diversions were permitted at Brooklyn.

The first was the exhibition of sanitary apparatus, food materials and the customary range of inventions promotive of good health, that finds place in this kind of exhibition. This is the first exposition of the sort that has been attempted at any annual session of the Association. It was a modest show, tentative in extent, but sufficiently attractive to make it probable that it will be tried more fully at future meetings, when the local committees shall see fit to give their time to it. The present report is that the exhibition has been self-sustaining; an income having been derived from the rental of floor space to the exhibitors.

The second diversion was a public meeting held at the Academy of Music, on the evening of the first day, in order to extend the freedom of the city to the visitors. At this meeting, which the citizens and especially the medical profession attended *en masse*, addresses of welcome were delivered by the Mayor of the city, Mr. Chapin, Dr. Alexander Hutchins, for the profession, the Rev. Dr. R. S. Storrs and ex-Mayor Seth Low, who has just been elected to the Presidency of Columbia College, in New York City. These are four speakers who, in their respective fields, are held in highest esteem in the community. The address of Dr. Hutchins was, in a marked manner, approved and enjoyed by the medical members present.

The third diversion was an excursion, by steamer, on the afternoon of the second day, to the Quarantine Station on the Lower Bay of New York Harbor. The original plan of this excursion included a visit to the islands in the East River, on which are located the charitable institions of New York City, but lack of time prevented the carrying out of that part of the programme; the blustering weather, also, was rather adverse to a prolonged sail after visiting the objects of interest in the harbor below. Two hundred and twenty delegates and their friends took the excursion. A collation, given by the citizens of Brooklyn, was served during the sail. The visit to the quarantine islands was upon the cordial invitation of Dr. William M. Smith, for many years the Health Officer of the Port of New York. Dr. Smith sought this as a favorable opportunity of explaining the *modus operandi* of a modern, non-stringent quarantine, and of making better known to the official members of the Association some of the changes instituted by him in recent years. With the exception of the foregoing, the time of the Association was wholly given to the consideration of scientific business.

The notable papers, prepared for the convention, included one by Dr. John S. Billings, U. S. Army, who took for his subject *The Sanitary Relations of the Federal Census;* one by Dr. George M. Sternberg, also of the Army, who treated of *Yellow Fever and its Etiology*, therewith presenting microphotographic illustrations by means of the stereopticon; one by Mr. Edward Atkinson, of Boston, on *The Economics of Cooking*, made plain by the preparation and service to the audience of a hot supper, cooked in ovens invented by himself, over two oil lamps, while his lecture was in progress; one by Dr. Salmon, of the National Bureau of Animal Industry, who gave an illustrated discourse on *The Texas Cattle Plague;* also a paper by Prof. W. O. Atwater, of Washington, on *The Physiological Chemistry of the Dietaries of various Nations and Occupations.*

The stimulating and instructive nature of many of these addresses, as well as of others on the various problems vexing the medical officer of health, was manifest in that they called forth a volume of debate which was far in excess of the time apportioned to the discussion of papers. If a full week had been the length of session, it would have been none too long to have been occupied by the themes that were ripe for consideration in the minds of the members. The presiding officer had frequently to cut short an interesting subject by reason of the preassignment of the time to other interesting matters.

The Presidential Address of Dr. Hosmer A. Johnson was cordially received by the popular audience to which it was read (see JOURNAL, November 2, 1889).

The Overshadowing of our Homes, by Dr. Thornton Parker, of Newport, was the subject of the first paper of the first day. The contention of this paper was adverse to the large or general employment of shade trees, as exemplified in the towns of New England. Dr. Maxwell, of Florida, and others from the Southern States defended the shade tree.

Infant Mortality occupied the afternoon session of the first day very fully. Papers of exceptional value were presented by Dr. Jerome Walker, of Brooklyn, and Alfred White, Esq., also of Brooklyn; the latter giving the results of a large experience in the construction of improved tenement houses. Dr. George Homan, of St. Louis,

offered some suggestions regarding the compensation due to health officials.

On the second day, Dr. Billings gave an outline of the proposed studies in vital statistics to be carried out under the coming census, inclusive of new features to be introduced in regard to the sanitary districting of ten or more of the larger cities. His propositions elicited much discussion. Dr. J. N. McCormack, of Kentucky, in this connection, introduced a resolution instructing that an effort be made to establish cordial relations with Cuba and Mexico, in respect of the sanitary departments and undertakings of those countries. Later this was adopted by the Executive Committee.

Dr. Ezra M. Hunt, of New Jersey, took up the subject of *Phthisis Prevention and the Methods, indicated by the latest Researches, to be employed to that End.* The discussion of this subject was deferred until the following day, when it was opened by Dr. J. S. Billings, who inclined to limit the preventive official measures to precautions against the aerial diffusion of dried phthisical sputa.

Dr. Gihon, of the U. S. Navy, introduced a resolution declaring the sentiment of the Association to be favorable to the adoption of preventive means, as to the disease in question, so far as to recommend the destruction of the tuberculous sputa.

The further discussion of the prevention of tuberculosis was taken up on the afternoon of the third day, the papers introductory thereto being presented by Dr. Edward Playter, of Canada, and Dr. P. H. Kretzschmar, of Brooklyn. The latter speaker defended the doctrine of the heredity of phthisis pulmonalis and laid down the following propositions:

First. If there are many children in a family, those born after the sixth or after the seventh are apt to develop pulmonary consumption.

Second. If the children in a large family are born at short intervals, say one year, the younger ones are apt to develop pulmonary consumption.

Third. If the offspring of healthy parents, born under conditions named above, escape the disease, their children are apt to develop pulmonary consumption.

The discussion was animated on every point bearing on the prevention of the spread of tuberculosis, and is destined to be renewed at future meetings, many members not having had a full freedom to express their views.

Prior to the midday excursion, on the second day, remarks were made by Health Officer Smith and Dr. Raymond explanatory of the conditions and modifications of quarantine administration in the harbor of New York. The remarks of Dr. Smith dealt largely with details of construction and will, when printed, have that value that belongs to a work of reference. It transpired later that while, or about the time, these remarks were being made, there was delivered at the morgue of the quarantine hospital the body of a yellow fever victim, a sailor who had died a few hours before on a steamer coming in from a Central American port. A few members only knew what the morgue contained.

The morning session of the third day, October 24, was chiefly given up to papers and discussions having relation to garbage disposal and the pollution of streams. The chief papers were by Drs. Martin and Kilvington, the Health Commissioners of the cities of Milwaukee and Minneapolis. According to Dr. Martin the cremation of city refuse had not proved to be the success that it promised to be in the Western cities. He said:

"Cremation as a system has had its day, and a brief one it has been.

"The present system in the city of Milwaukee is the Merz system, which, from June 11 last, has given the best of satisfaction. The quantity of garbage collected is 40 tons daily, which with that brought to the works by the commission dealers, wholesale men and grocers, brings the total up to 50 tons, which is promptly disposed of. The works are situated in the slaughter house district, and the building is a two-story frame, 62 by 110 feet. The garbage teams drive up an inclined roadway to the second story, where the garbage is thrown on the floor to be scraped into the driers, of which we have eight. The time occupied in drying the garbage varies, of course, with the quantity and amount of moisture, but is usually from eight to eleven hours."

Another practical subject, the use of sulphur as a disinfecting agent in the hands of sanitary officials, was brought to the front by a paper by Dr. Cyrus Edson, of New York City. Many health officials participated in the debate on this subject. The preponderance of opinion seemed to be in favor of the value and efficacy of sulphurous fumigation when thoroughly performed, and when the vapor of water was freely generated in the apartment containing the infected materials; also that the wetting of articles with water is not desirable, lest there be a bleaching process set up and a damage to certain fabrics by sulphurous acid gas.

On behalf of Dr. Rauch, of Chicago, the following motion was introduced and suitably referred:

WHEREAS, Asiatic cholera, leaving its usual restricted bounds, threatens to advance by the same lines that it has followed in the last four epidemics, be it

Resolved, That the American Public Health Association desires to call renewed attention to this fact, and to urge that quarantine authorities on the Atlantic and Pacific seaboards and boards of health throughout the country make every effort to prepare for this threatened danger.

The evening of the third day had two papers finely illustrated by stereopticon views: first, a paper on *Sanitary Disposal of the Dead*, by Rev. Charles R. Treat, of New York City; second, one

by Dr. Benjamin Lee, of Philadelphia, on *The Sanitary Reasons why Cuba should be Annexed to the United States*. The dangers from yellow fever, small-pox and leprosy, under the present Cuban Government, are such, Dr. Lee maintains, that this country may lose, in a single season, by imported infectious disease, more than the island of Cuba is worth if it were bought outright from her proprietors, at their own valuation. The illustrations of leprosy, presented by Dr. P. A. Morrow, of New York, were greatly admired; the closing one being a portrait of the late Father Damien, the leper priest of Molokai.

According to the paper of Rev. Mr. Treat the newly proposed plan of sanitary entombment will bring down the cost of corpse disposal to about $15 for each body entombed.

The morning of the fourth day, chiefly occupied though it was by official reports and routine business, was partly given up to a discussion of *The Causes of Infant Mortality*, based upon a vigorous paper, prepared by Dr. R. O. Beard, of Minneapolis, and read by Dr. Gibon. Several health officers participated in the debate, who showed the difficulties they have to contend with on account of the vague or misleading nomenclature of the causes of death employed by many physicians. Dr. G. C. Ashmun, of Cleveland, instanced the use of the term "marasmus," by physicians of prominence, to cover nearly every case of infantile mortality, especially when the mortality must be published in institutional reports. The phrase indicates nothing that is useful for statistical or sanitary purposes, and should be put in the same category with "debility" and "heart failure."

Dr. W. M. Smith held that it should be the duty of every health officer to decline to accept certificates of death which evade, omit or vaguely state the cause of death, not less with regard to infant than adult mortality.

Growing out of this discussion, a motion was made for the appointment of a special committee, Dr. Jerome Walker, of Brooklyn, to be chairman, to consider *The Causes and Prevention of Infant Mortality*, and report, from year to year, at the discretion of the Executive Committee.

The convention closed about noon on the fourth day, up to which time the attendance continued creditably large. By some of the members it was pronounced the most satisfactory in the past history of the body.

The officers elected for the coming year are as follows: President, Dr. Henry B. Baker, of Michigan; first Vice-President, Dr. Frederick Montizambert, of Quebec; second Vice-President, Dr. Joseph H. Raymond, of Brooklyn. The Secretary, Dr. Irving A. Watson, and the Treasurer, Dr. Berrien Lindsley, were reëlected. The following elective Trustees will serve one year: Dr. H. B. Horlbeck, of Charleston, S. C.; Dr. L. T. Salomon, of New Orleans; Dr. Wm. Bailey, of Louisville; Dr. Peter H. Bryce, of Toronto, Canada; Dr. J. F. Kennedy, of Des Moines; and Dr. Walter Wyman, of Washington, D. C. The time of holding the next meeting, not definitely fixed, will be early in November, 1890; place of meeting, Charleston, S. C.

On motion of Dr. Plunkett, of Tennessee, a special vote of thanks was tendered to Dr. J. H. Raymond, chairman of the Brooklyn local Committee of Arrangements, for his arduous and successful efforts on behalf of the convention then drawing to a close. The daily papers of Brooklyn and New York City were very cordial and appreciative, reporting the proceedings very fully and praising without stint the efforts of the members on behalf of the preservation of public health.

Obstetrical Society of Philadelphia.

Stated Meeting, September 5, 1889.

(*Concluded from page 647.*)

DR. JOSEPH HOFFMAN reported

A SERIES OF ABDOMINAL SECTIONS, WITH SPECIAL REFERENCE TO COMPLICATIONS.

He said: The list of operations may be classified as follows: One strangulated ventral hernia; one appendicitis and hæmatocele; sixteen cases of ovarian and tubal disease with adhesions, inflammation, and occlusion of the tubes, with one death, the result of sepsis. Where the infection came from, for a long time puzzled me. Months after the death I learned that the patient had had a miscarriage brought on instrumentally, and the mystery was solved. In other words, I believe the tubes were septic, and gave rise to the peritonitis.

By this case I believe there is sufficient learned to warrant the practice of cauterizing the tubes after ligation and section in all doubtful cases where there is the least suspicion of infection. If this is not done, they should be thoroughly disinfected and the abdomen drenched. I have had no other death from like cause, or from peritonitis from any cause. Six cases of pyosalpinx; one occurred during pregnancy, and the operation was done to save life. The woman miscarried the fourth day after the operation, but made an excellent recovery, though her pains were very great during miscarriage, and were only controlled by the free use of morphia and atropia. All cases of pyosalpinx recovered. They are all working in comfort, save one, who has lately died of tuberculosis. This last case is strongly in support of Bernutz's view, that pus in the tubes is a forerunner of general tuberculosis.

In two cases, the gonorrhœal origin of the

pyosalpinx is well established; in two, the history points to post-puerperal origin; in the remaining two, the origin is doubtful, though in one of the cases I strongly suspect a specific start.

On died of shock—never coming out of anæsthetic. She was a hard drinker.

In two cases the tumor removed was dermoid. Both were small. In one of these cases the uterus was rudimentary, though the woman had for a long time worn a pessary for a so-called displacement, introduced by a specialist in gynecology.

There is sufficient commentary here on the use and abuse of pessaries without further remark. In two cases exploratory incision was made. In both, the women recovered quickly. One of these soon after died after tapping; from what cause, I do not know. I visited her for a day or two after tapping her, and was told that the patient was feeling so well that no further visit was necessary. In a week, or thereabouts, I learned of her death in the hands of another. The whole air of the matter was unsavory, and I am not sorry to remain in ignorance concerning it. The second exploratory incision was due to an error in diagnosis, The uterus was retroverted, a miscarriage having occurred a short time previously. There was a peculiar thickening of the right broad ligament, which immediately led to the blunder. I examined the patient on my table soon after her recovery, and had I not known that I had erred before, the condition was such that I would have done so again. Two small ovarian cysts; both recovered. One case of omental hernia, one case of extra-uterine pregnancy. One case of operation for adhesions due to previous operation. The result has now a greater measure of success than I hoped for a short time ago.

The drainage tube was used in fourteen cases. I believe I would have had a better chance of saving one of my deaths had I used it. I have never had a death from its introduction. I have had but one fistula persisting after its use, and this now gives every sign of closing. In only one case has there been a discharge of the ligature. The patients operated upon are now all living but four. They are all able to do their work comfortably save two. One case, I believe, is reported to have had another operation. She was a most ungrateful baggage, and I trust she will tarry a long while on earth for the experience she will bring to others. I have had one case of hernia after simple section. The woman was fat, and neglected her bandage. In two cases where it existed previously to operation it still is present. I did not really operate for its cure. I have found drainage and flushing the abdomen to be of the greatest service in cleansing the abdomen of *débris*, and believe them indispensable. Free saline purgation, or when the salts are not retained, mercurial purgation, is of the greatest benefit in severe wind-pains. These are probably more frequently the cause of pain soon after the operation than inflammation, though there is no doubt that here, also, these purges are of undoubted value. In the question of diagnosis, I find it is much easier to say there is a lesion than to map it out exactly or to define it. I have found marked trouble in cases where expert examination pronounced disease absent; in others, where one thing seemed to be the trouble, another was found present. So far as pain is concerned, it does not always indicate the spot of the lesion. I have found one side the most diseased when it was freest from pain.

In the thirty-three operations recorded, two deaths have occurred. No patient was operated on by myself more than once. The first death occurred early in the series. In the last twenty-six cases there has been but one death. The last eighteen cases have been without death.

Dr. Joseph Price reported

TWO OPERATIONS FOR EXTRA-UTERINE PREGNANCY.

The first case I have to report is that of a white woman, æt. 35, nursing a child of 13 months. Menses appeared on the fourth month of lactation, and remained perfectly regular at intervals of twenty-seven days; four days duration; were absent two periods, followed by paroxysms of pain and collapse. At this point I saw her, and operated immediately for ruptured tubal pregnancy. I found about a quart of clotted blood in the peritoneal cavity; tubal rupture left side; hydro-salpinx right side. Clean removal of both sides; irrigation; drainage; recovery.

The second case, occurring in a pure negress, is of great interest. I am not satisfied, from the microscopical appearance, that it is a true *ovarian* pregnancy. Ovarian cysts are very rare in true Africans. In the blood cyst, I found something for all the world like placenta and membrane. I do not wish to put this on record as an ovarian pregnancy until I receive the report of Dr. Henry Formad, the pathologist. There also existed in this case a hydro-salpinx of the other side—both demonstrating most beautifully the causal relation of tubal disease to ectopic gestation. One point of great interest in connection with these cases that survive the rupture and go into the hands of the surgeon, is the marked difference in the character of the hæmorrhage from those that go into the hands of the coroner—and they are numerous. In the latter cases, the hæmorrhage is overwhelming, and the abdomen is found full of blood. The surgeon finds probably one-fourth the blood. Dr. Formad, the coroner's physician, tells me that in one case he found the peritoneum deluged with blood, and the little fœtus sitting, or washed up on the pan-

creas. Its object was probably to try and escape a possibility of electrical treatment.

DR. J. M. BALDY reported a case of

FIBRO-CYSTIC TUMOR OF THE UTERUS.

Mrs. A., æt. 35 years, married, no children. Has had a lump in her abdomen for fifteen years, which remained quiescent until within the last two years, since which time it has grown rapidly. Menses have gradually become irregular and profuse; bowel and bladder symptoms have become severe; pus has appeared in the urine; abdomen is constantly swollen, and very painful; general health had begun to suffer severely. Examination showed a uterine tumor, and its removal was advised, the dangers of the operation being fully explained. Operation was eagerly accepted. The tumor was removed one week ago last Tuesday, and proved to be an extremely nodular fibroid, which had undergone cystic degeneration in part, and in other parts is quite œdematous, as can be seen by the specimen which is here before you. The mass was firmly wedged into the pelvis, and was delivered with the greatest difficulty, leaving practically no pedicle at all. The case was treated by supra-vaginal amputation, a wire nœud being first placed around the lower portion. The stump was treated by the extra-peritoneal method, as advocated by Bantock. After the tumor had been cut away, there was left a stump with a diameter of over three inches; this was gradually trimmed away until it was reduced to about an inch and a half in diameter. The operation was altogether the most trying and most difficult one of this kind I have ever performed or seen.

This case presents the opportunity for a few remarks on the method of treating the pedicle in hysterectomy, and on the use of electricity in fibroid tumor of the uterus.

There are two methods of treating the stump—the intra-peritoneal, as advocated by Martin, and the extra-peritoneal, as advocated by Bantock. All other methods devised or proposed are simply modifications of these two, and are far from being as good as the originals. A so-called half-way method proposed by Kelly last winter has so many objections for general application, that it is hardly worthy of consideration, excepting for picked cases; and these must be cases of the simplest kind, with a pedicle which can be easily dealt with. In the *New York Medical Journal*, for July, Douglas has called particular attention to the defects of this departure.

What we want are results, and in questioning different gentlemen who are experimenting with the so-called improvements in hysterectomy, I find almost universally that their losses amount to from 30 per cent. to 50 per cent. The patients who get well may do so quickly, and the operations may be very beautiful, theoretically, but the results are murderous! Until a larger number of cases have been reported, and the results are very decidedly better, I prefer to pin my faith to one or other of the two original methods. Of these two, the results obtained by the extra-peritoneal method are, at present, very decidedly the best, and have proven eminently satisfactory in my hands. Martin, by the intra-peritoneal method, reports a series of eighty-four cases, with twenty-five deaths. Later, he has thirty cases, with three deaths; and still later, he has "another series with good results;" and last, a series with bad results." And so, after an experience of much over one hundred and twenty-five cases, he ends up with a series so bad that he does not publish it. In contrast with this stands Bantock's record, by the extra-peritoneal method, of fifty-seven cases with only twelve deaths, and his results continually getting better to the end. He now has a run of thirty or forty cases without a death. These figures speak for themselves. After all his experience, Martin ends by saying, "So I think we must wait for a larger number of cases before deciding this question."

Of the twenty-five deaths met with by Martin in his first eighty-four cases, fifteen died of "bleeding, embolism, and collapse," all of which, of course mean hæmorrhage. Now by the extra-peritoneal method, these would all have been saved, as bleeding cannot possibly occur if the wire does not slip or break. Again, ten of Martin's cases died of sepsis; this also is much less likely to happen by the extra-peritoneal method, as all cut surfaces are outside the peritoneal cavity, in plain sight, and under perfect control.

When Martin has finished his operation and drops the stump, as I have seen him do, the appearance to the naked eye is simply perfection, and one carries away the feeling that everything is cleaner than the stump of an ovariotomy. On the other hand, when the stump is left outside, as I was taught by Bantock, the after-treatment is often tedious, and the convalescence prolonged. If the stump is not perfectly dry it is apt to suppurate, and, at best, it is an unsightly affair. But when we contrast the results, there can be but one choice, if we give proper consideration to the safety of our patients. Not only are Martin's own results bad, but in the hands of less expert and experienced operators the mortality is very high. Even Bantock has lost four out of five cases by the intra-peritoneal method. By the extra-peritoneal method, five or six of us here in Philadelphia can now put on record twenty or more cases with only about two deaths in the lot, and those were cases in which there was extensive cancerous involvement of vital organs. In fact, our mortality is about as good as that in ovariotomy.

The use of electricity in fibroids is not without

its dangers and impossibilities. Such a case as that before you is wholly beyond the reach of this palliative agent. To have done any good to that tumor it would have to be punctured, and this large cyst which you see, emptied. To have done so in this case would have required a puncture four or five inches deep; the needle would have to have penetrated the whole length of the tumor. Dr. Massey punctured one of these cystic tumors (if I recollect correctly) last winter, and the patient very promptly died of sepsis. At the June meeting of this Society Dr. Price presented two specimens of fibroid tumors. One was a large œdematous myoma, containing blood vessels as large as the iliacs, and, as he then said, one might as well have tried to dissipate the iliacs themselves as those vessels; a puncture of any one of them would have meant tremendous hæmorrhage. The second specimen was a fibro-cystic tumor with nothing but a thin membrane between the cyst cavity and the uterine cavity, the membrane being lined with a mass of blood-sinuses as large as one's little finger. An attempt to puncture that case would have meant almost instant death. And so it is with many other specimens on record. The fact is plain that there is a large class of fibroid tumors totally unfit for the electrical puncture; and to make the danger in these all the greater, they cannot always be differentiated. For instance, the fibro-cystic character of the specimen before you was not even suspected during life, although repeated examinations were made. There is plenty of material here for earnest thought, and it ought to be a warning against blindly rushing into the use of electricity in all cases, simply because the enthusiastic advocates of this treatment fail to bring out its dangers, and, in fact, only too universally hide them.

FOREIGN CORRESPONDENCE.

LETTER FROM LONDON.

(FROM OUR OWN CORRESPONDENT.)

Some Interesting Facts about the Brain—Poisoning by Arsenic—The Overcrowding of the Medical Profession—Statistics of Admission to Scottish Lunatic Asylums—The Mode of Treatment at Aix les Bains—The Anglo-American Vienna Medical Association—Miscellaneous Notes.

There has been published the result of some measurements of the heads of students in the Cambridge University, showing that although it is pretty well ascertained that in the masses of the population the brain ceases to grow after the age of 19 or even earlier, it is by no means so with University students, and that the men who obtain University honors have larger brains than the average. Further careful experiments show that the brains of human beings change in size. Taken at different times in the same individual the length of the head varied $\frac{1}{16}$ inch, the width $\frac{1}{8}$ inch, and the length as much as $\frac{1}{2}$ inch. The variations were not due to head growth. They sometimes showed reduction of size to the extent of 6 per cent.

In a recent discussion upon "Poisoning by Arsenic," it was generally admitted that acute cases followed by urgent symptoms and death were best known in the practice of forensic medicine, but arsenic could be administered as a slow poison, and death might occur six weeks after the victim had ceased taking arsenic. Nevertheless the symptoms are much the same in both cases, varying only in the time of development. There are first troubles of the digestive organs; secondly, catarrhal bronchial irritation and eruptions on the skin; thirdly, loss of sensibility, numbness of the lower limbs, cramps, acute pains, followed by local insensibility; and the fourth and final stage is indicated by paralysis. The case was mentioned of a woman who was poisoned at Havre, and whose hair was cut and analyzed. One hundred grams of her hair yielded 1 milligram of arsenic. It was thought that there should be no difficulty in detecting arsenical poisoning if the bones and especially the cancellous tissue was analyzed.

During the long vacation just ended many journals have taken the opportunity to warn intending students of medicine that the ranks of the profession are at the present time tremendously overcrowded, and that it was impossible for them all to make an adequate livelihood. For the last five years an average of 1,921 entering medical students have annually registered their names, which shows if competition has been severe in the past, it is certainly to be more so in the near future. At his opening lecture Dr. P. S. Abraham, at the Westminster Hospital, referring to the progress made in the medical profession, said the "barber surgeon" was long since extinct and the hybrid medical tradesman was becoming obsolete, and that Voltaire's oft-quoted dictum that a medico "was a man who poured drugs of which he knew little into a body of which he knew less" was not quite so true now as it was. He pointed out the fact that London was the healthiest city in the world, as a concrete result of the attention paid to the advice of sanitarians. He admitted that in recent years the State had more and more recognized its obligations to the public weal and had done much for the science of health, but a great deal was still left to private effort and generosity. They had to await the initiation by his Royal Highness the Prince of Wales and his "Damien Committee" of a much needed crusade of investigation against one of the most terrible scourges of mankind, and they had to leave gaps in their knowledge of an important therapeutic

agent until an enlightened Indian prince came forward and handsomely defrayed the cost of its re-examination.

Statistics of admission to Scottish lunatic asylums indicate an unmistakable seasonal variation. The Report of the Commissioners contains a table showing the numbers for each month of the eight years 1880–1887. The average monthly total is 1,699, but during the three months of May, June and July that average is exceeded by 628, while in the four months of October, November, December and January the admissions are 462 below the mean. These two periods of maximum and minimum are the extremes of a regular annual rise and fall. A steady increase is perceptible through February, March and April, and after the culmination in June there is a similar fall from July to the autumnal equinox. Similar figures collected for the years 1865–1874 reproduce exactly the same periodical change, differing only in the length of the maximum in early summer. Another fact which points to the same conclusion is revealed by the statistics of suicides, for Mr. Buchan and Dr. A. Mitchell showed long ago that self-murder was most common in just those very summer months in which lunacy is most rife.

Many patients are now returning from Aix-les-Bains. The patient at this health resort has to go through a somewhat curious course. He walks down — unless rheumatics have crippled him too much—to the bathing establishment in the morning. There he is shampooed and massaged, but he is not allowed, as in most places, to go home in his own clothes. He is wrapped up in blankets, is then deposited in something resembling the old sedan chair, is carried by two stout porters back to his room and put to bed. There he has to remain for some time perspiring copiously and, if possible, sleeping. In some cases there is a renewal of the massage. The patient at Aix-les-Bains is nearly always tired and always depressed, but people who have tried the place for many years describe its results as miraculous.

In Vienna some English and American physicians have resolved to found a society to be called the Anglo-American Vienna Medical Association. The society is founded with a view to giving information and moral support to the English and American doctors and students of medicine who come to the Vienna University. As a rule there are but few students of medicine from England and America, but a great number of doctors of medicine. In the last half year 105 American doctors and several lady doctors were on the books.

At a meeting of the Society for the Study of Inebriety, held in the rooms of the Medical Society of London, Dr. Norman Kerr, the President, stated that though he had known arsenic, iodine and similar substances to make a permanent impression on the nerve centers, and taken habitually to excess, he could not class arsenic eating alongside of alcoholism or morphinism as a true narco-mania or inebriety. It was resolved to ask for a Parliamentary committee of inquiry into the Inebriates Acts, with a view to amend legislation.

The many Americans and others who winter in Venice will be pleased to hear that the town is to undergo a complete sanitary rehabilitation. The works to be commenced with this object will spread over ten years, and the first provisional estimate of the outlay amounts to some four and a half million francs. In conjunction with this purely hygienic undertaking a plan for remodeling the city architecturally will also be carried out, for which a period of thirty years is computed to be necessary.

Lady Milne has died at a dentist's in Edinburgh whilst under the influence of gas for the purpose of having a tooth extracted.

G. O. M.

DOMESTIC CORRESPONDENCE.

Tetanus Caused by Intestinal Irritation.

To the Editor: — Whilst looking over THE JOURNAL of September 7, 1889, I noticed a letter from P. B. P., of New York, giving a synopsis of a paper on "Tetany in Infancy and Early Childhood," read by Dr. J. Lewis Smith at the last meeting of the New York County Medical Association, which alleged that there is no recorded instance in which lumbrice or ascarides caused tetanic contractions: but Gowers refers to three cases caused by tapeworms. This statement of Dr. Smith's brings to my mind the case of Sarah Shelton (colored), aged 12 years, which occurred in my practice a few years since. I was summoned during the month of February to see this patient, who was suffering with the most violent attack of tetanus that I had ever seen. I found her resting upon her head and heels in a state of complete opisthotonos, with the jaws firmly closed and the head drawn to the left side. Every muscle in her body seemed to be rigid except those employed in deglutition. Her arms were forcibly flexed, and the muscles of the abdomen were as hard as a brick. After a careful examination I found that there was no traumatic injury, and I at once suspected that worms in the alimentary canal were the cause of the trouble, and calomel and santonine were given in decided doses, followed by castor oil and turpentine. Her bowels were obstinately constipated and refused to respond to this treatment. Enemas were then given, upon which she passed a large ball of lumbricoids containing about thirty worms, half of which were dead. Her muscles would relax only

when under the influence of chloroform administered by inhalation. The bromides, chloral, Indian hemp and morphia were also used, but they gave only temporary relief. Finally I gave her the tincture physostigmatis, prescribed a generous diet with stimulants, and an occasional laxative. She remained in this rigid condition more than a month, but she is now as healthy and well developed as any young woman in this county. I was fully convinced then, and am now, that this species of worms was the specific cause of her condition. If you consider this case of sufficient interest you have my permission to give it a place in your excellent journal. Respectfully,

B. A. DUNCAN, M.D.

West Point, Miss., October 11, 1889.

One Cause of Sickness and Discomfort Largely Preventable.

To the Editor:—Owing to the drouth, fires, especially in swampy places, are numerous, and the atmosphere is unusually smoky and irritating to the eyes, head and air-passages. Some diseases are aggravated,[1] sleeplessness, nervous disturbance, general discomfort and, I believe, other serious troubles not commonly recognized as due to this cause, result, because the atmosphere is to a considerable extent unfitted to properly sustain life. One apparent change in the atmosphere is to lessen, below the normal limit, the active oxygen, and this is especially true during the nights; thus, during the week ending October 19th no ozone whatever could be detected in the atmosphere at Lansing on any night except one, Wednesday. A sense of want of air, even approaching suffocation, and a weakness of the circulation, in some approaching heart failure, has been noticed.

The object of this note is to ask attention to the fact that much of this discomfort and danger to health could easily be prevented if all persons would refrain from setting fire to rubbish until after this bad condition of the atmosphere has passed. On some evenings dozens of such fires have been set in one small city in the interior of this State. "As the wind goes down with the sun," nearly all the irritating smoke and bad air from such fires built in the evening remain in the city or village, and must be breathed by the inhabitants.

If such fires must be made, it would be very much better to build them in the morning, because the movement of the atmosphere then usually increases until 2 P.M., and that may carry the foul and irritating air from such burning rubbish outside the city or village.

HENRY B. BAKER, Secretary.

Office of the State Board of Health, Lansing, Mich., October 23, 1889.

NECROLOGY.

Morse K. Taylor, M.D.

Morse K. Taylor, M.D., late Surgeon U. S. A., died at his residence in San Antonio, Texas, on the 20th of October, 1889, after an illness of two weeks.

Dr. Taylor was born in Watertown, N. Y., on May 14, 1823. He subsequently moved into Michigan, where he commenced his military life as Second Lieutenant in the First Michigan Cavalry, and served through the war with Mexico with credit and was honorably discharged in July, 1848. After his discharge he commenced the study of medicine and graduated from the medical department of the University of Michigan at Ann Arbor in 1852, and soon commenced the practice of his profession in Galesburg, Ill. On the organization of the Chicago Medical College, then called the Medical Department of Lind University, in Chicago, 1859, he was appointed to the chair of Physiology and Hygiene in that institution. He discharged the duties of that position with ability and to the satisfaction of both faculty and students, but only two years later, 1861, the war for the preservation of the Union commenced, and he was offered the position of Colonel of the Fourth Illinois Infantry.

This he declined and accepted the office of Surgeon of the Twenty-sixth Illinois Infantry in August, 1861. The next year he was commissioned Surgeon of United States Volunteers, and served in that capacity until October, 1865, when he was honorably mustered out, having been promoted to the rank of brevet Lieut.-Colonel for faithful and meritorious services. The war having closed he settled in Keokuk, Ia., and commenced practice.

In May, 1867, however, he was commissioned Captain and Assistant Surgeon in the United States Army, and was assigned to active duty on the Western frontier. He continued in active service in different places in the West until 1879, when he was transferred to New York, next to Detroit, and afterwards to Fort Sill, in the Indian Territory, where, in 1884, his wife died, to whom he had been married at Clinton, Mich., April 25, 1849. In June, 1882, he was made Surgeon with the rank of Major, and on the 14th of May, 1887, he was retired from active service, having reached the age of 64 years, and ordered to San Antonio, Texas, the place he had chosen for his residence. Here he identified himself with all the more important interests of the community, social, educational and religious, and won the respect of all.

He was a physician of marked ability and scientific attainments; an active member of the American Medical Association, and an accurate writer.

[1] During the week ending October 19th, tonsilitis increased 50 per cent., pleuritis 33 per cent., inflammation of the brain 25 per cent., and membranous croup 25 per cent. Probably other causes than the one here mentioned had influence, but the other atmospheric conditions were not such as to account for such increase.

A correspondent at San Antonio says: "He had in process of completion a work on the climatology of Texas, which for scope and detail is wonderful." His son, Dr. F. M. Taylor, has been intimately associated with him in his more recent literary and professional work, and it is hoped that he may complete the same for the public.

N. S. D.

Thos. Snowden, M.D.

Dr. Thomas Snowden, a resident of Peekskill, N. Y., died in New York City October 11, æt. 64 years and 8 months. He was an alumnus of the College of Physicians and Surgeons, New York—a member of the class of 1849.

MISCELLANY.

COMPARATIVE OBSTETRICS.—A giraffe has been born in the Cincinnati Zoo, the first delivery of this kind that ever took place in this country. It is said to have been a head presentation and to have been a long labor, the baby being nearly 6 feet from tip to toe when dropped.

THE AMERICAN ACADEMY OF MEDICINE will hold its thirteenth annual meeting at the Leland Hotel, Chicago, Ill., on Wednesday and Thursday, November 13 and 14, 1889. Papers will be read as follows:

"Object, Scope and Mission of the Academy," Drs. Traill Green, of Easton, Pa., Edward Jackson, of Philadelphia, and R. Lowry Sibbet, of Carlisle, Pa. "Literary Degrees as they Interest the Academy," Dr. Richard J. Dunglison, of Philadelphia, Pa. "Preliminary Requirements of American Medical Colleges of the Present Time," Dr. John H. Rauch, of Springfield, Ill. "Instruction by Recitation," Dr. Henry M. Lyman, of Chicago. "Methods of Teaching Medicine," Dr. Wm. F. Waugh, of Philadelphia. "Medical Harmony, as Influenced by Preliminary Training," Dr. F. C. Heath, U. S. M. H. S., Detroit, Mich. "Professional Integrity vs. the Code," Dr. S. N. Benham, of Pittsburg, Pa. "The Institutes of Medicine; the Necessity of Their Being Taught in Our Schools," Dr. J. Cheston Morris, of Philadelphia, Pa. "Gymnastic Medicine," Prof. E. Hitchcock, Jr., M.D., of Ithaca, N. Y. "Vice and Crime," Dr. J. A. Thacker, of Cincinnati, O. "The Moral Treatment of the Insane," Dr. Gersham H. Hill, of Independence, Ia. "Sulphonal in Hysteria," Dr. Andrew C. Kemper, of Cincinnati, O. "The Physiological Action of the Typhoid Fever Poison," Dr. N. S. Davis, Jr., of Chicago. "Malignant Tumors of the Mammary Glands, with Cases," Dr. E. F. Wilson, Columbus, O. "Improved Operation for Varicocele," Dr. E. Wyllis Andrews, of Chicago. "What is the Proper Function of American Medical Colleges of the Present Time?" Dr. Samuel J. Jones, of Chicago, Ill.

Reports will be read from various special and standing committees; among the latter, one by Dr. Justin E. Emerson, of Detroit, Mich., on "Preliminary Requirements of Medical Colleges," and one by the Secretary of the Academy, Dr. Dunglison, on "Laws Regulating the Practice of Medicine."

The President's address will be delivered by Dr. Leartus Connor, of Detroit.

The annual collation will take place at the Leland hotel on Wednesday evening, November 13th.

RICHARD J. DUNGLISON, M.D.,
Secretary.

Official List of Changes in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from October 26, 1889, to November 1, 1889.

Major Morse K. Taylor, Surgeon U. S. A. (retired), died October 20, 1889, at San Antonio, Texas.

Major Robert M. O'Reilly, Surgeon, par. 3, S. O. 24, October 16, 1889, from this office, is so amended as to grant him leave of absence for six months, with permission to leave the United States, by direction of the Secretary of War, to take effect November 1, 1889. Par. 6, S. O. 252, A. G. O., Washington, October 29, 1889.

By direction of the Secretary of War, so much of par. 2, S. O. 44, October 16, 1889, from this office, as relates to Lieut.-Col. Anthony Heger, Surgeon, is amended to read as follows: Lieut.-Col. Anthony Heger, Surgeon, is relieved from further duty in the Div. of the Atlantic, and will at once report to the Major-General commanding the Army for duty in this city. Par. 3, S. O. 252, A. G. O., Hdqrs. of the Army, October 29, 1889.

Major Joseph R. Gibson, Surgeon U. S. A., granted leave of absence for seven days, to take effect from date of being relieved from duty at Ft. Sheridan, Ill. Par. 9, S. O. 249, A. G. O., October 25, 1889.

By direction of the President, Major Wm. H. Forwood, Surgeon, is detailed as a member of the Army Retiring Board at St. Paul, Minn., convened by War. Dept. order dated January 12, 1889, published in S. O. 10, January 12, from Hdqrs. of the Army, vice Capt. Edgar A. Mearns, Asst. Surgeon, who is hereby relieved. Par. 12, S. O. 254, A. G. O., October 31, 1889.

By direction of the Secretary of War, so much of par. 10, S. O. 242, A. G. O., October 17, 1889, as directs Capt. Louis M. Maus, Asst. Surgeon, to report in person for duty at Ft. Stanton, N. M., to relieve Capt. Marcus E. Taylor, Asst. Surgeon, is revoked, and Capt. Taylor will proceed to Boise Bks., Idaho Ter., as directed in said order, as soon as medical attendance shall be provided for Ft. Stanton. Par. 10, S. O. 249, A. G. O., October 25, 1889.

By direction of the Secretary of War, Capt. Wm. C. Gorgas, Asst. Surgeon, is relieved from temporary field duty in the Dept. of the Missouri, and will join his proper station (Ft. Barrancas, Fla.). Par. 2, S. O. 25, A. G. O., October 28, 1889.

Capt. Louis M. Maus, Asst. Surgeon U. S. Army, granted leave of absence for two months on surgeon's certificate of disability. Par. 11, S. O. 249, A. G. O., October 25, 1889.

First Lieut. Julian M. Cabell, Asst. Surgeon U. S. A., granted leave of absence for two months, on surgeon's certificate of disability, to take effect about November 10, 1889. Par. 7, S. O. 249, A. G. O., October 25, 1889.

APPOINTMENTS.

First Lieut. Charles Willcox, Asst. Surgeon U. S. A., to rank from October 29, 1889.

First Lieut. Harlan E. McVay, Surgeon U. S. A., to rank from October 29, 1889.

First Lieut. E. B. Frick, Surgeon U. S. A., to rank from October 29, 1889.

By direction of the President, the Army Retiring Board convoked at Vancouver Bks., W. T., by War Dept. order dated December 15, 1888, published in S. O. 292, December 15, 1888, from Hdqrs. of the Army, is dissolved. Par. 1, S. O. 230, A. G. O., Washington, October 26, 1889.

Official List of Changes in the Medical Corps of the U. S. Navy for the Week Ending November 2, 1889.

P. A. Surgeon F. S. Nash, detached from duty in Bureau Med. and Surg., and to the "Petrel." November 14, 1889.

Medical Inspector E. S. Bogert, ordered to examination preliminary to promotion to Medical Director.

Asst. Surgeons O. D. Norton, I. W. Kite and E. P. Stone, ordered to examination preliminary to promotion to P. A. Surgeon.